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TREATISE

ON THE

CONDUCT

OF THE

UNDERSTANDING,

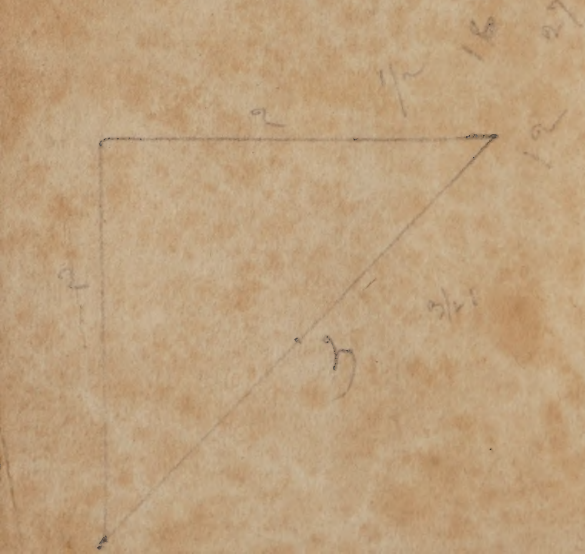
BY JOHN LOCKE, GENT.

BOSTON:
R. P. AND C. WILLIAMS,
1825.

W. Fehr

Coldbrook

Mass.



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LOCKE'S ESSAY

OF THE

CONDUCT OF THE UNDERSTANDING.

Quid tam temerarium tamque indignum sapientis gravitate atque constantia, quam aut falsum sentire, aut quod non satis explorate perceptum sit et cognitum sine ulla dubitatione defendere? Cic. de Natura Deorum, lib. 1.

§ 1. *Introduction.*

The last resort a man has recourse to in the conduct of himself, is his understanding: for though we distinguish the faculties of the mind, and give the supreme command to the will, as to an agent; yet the truth is, the man who is the agent determines himself to this or that voluntary action, upon some precedent knowledge, or appearance of knowledge in the understanding. No man ever sets himself about any thing but upon some view or other, which serves him for a reason for what he does: and whatsoever faculties he employs, the understanding with such light as it has, well or ill informed, constantly leads; and by that light, true or false, all his operative powers are directed. The will itself, how absolute and uncontrollable soever it may be thought, never fails in its obedience to the dictates of the understanding. Tem-

ples have their sacred images, and we see what influence they have always had over a great part of mankind. But in truth, the ideas and images in men's minds are the invisible powers that constantly govern them; and to these they all universally pay a ready submission. It is, therefore, of the highest concernment, that great care should be taken of the understanding, to conduct it right in the search of knowledge, and in the judgments it makes.

The logic now in use, has so long possessed the chair, as the only art taught in the schools for the direction of the mind in the study of the arts and sciences, that it would perhaps be thought an affectation of novelty to suspect, that rules, that have served the learned world these two or three thousand years, and which without any complaint of defects, the learned have rested in, are not sufficient to guide the understanding.—And I should not doubt but this attempt would be censured as vanity or presumption, did not the great lord Verulam's authority justify it: who, not servilely thinking learning could not be advanced beyond what it was, because for many ages it had not been, did not rest in the lazy approbation and applause of what was, because it was; but enlarged his mind to what it might be. In his preface to his *Novum Organum* concerning logic, he pronounces thus: *Qui summas dialecticæ*

partes tribuerunt, atque inde fidissima scientiis præsidia comparari putarunt, verissime et optime viderunt intellectum humanum sibi permissum merito suspectum esse debere. Verum infirmior omnino est malo medicina ; nec ipsa mali expers. Siquidem dialectica, quæ recepta est, licet ad civilia et artes, quæ in sermone et opinione positæ sunt, rectissime adhibeatur ; naturæ tamen subtilitatem longo intervallo non attingit, et prensando quod non capit, ad errores potius stabiliendos et quasi figendos, quam ad viam veritati aperiendam valuit.

"They, *says he*, who attributed so much to logic, perceived very well and truly, that it was not safe to trust the understanding to itself, without the guard of any rules. But the remedy reached not the evil, but became a part of it : for the logic which took place, though it might do well enough in civil affairs, and the arts which consisted in talk and opinión ; yet comes very far short of subtilty in the real performances of nature, and catching at what it cannot reach, has served to confirm and establish errors, rather than to open a way to truth." And therefore a little after he says, "That it is absolutely necessary that a better and perfecter use and employment of the mind and understanding should be introduced." "*Necessario requiretur ut melior et perfectior mentis et intellectus humani uses et adoperatio introducatur.*"

§ 2. *Parts.*

There is, it is visible, great variety in men's understandings, and their natural constitutions put so wide a difference between some men in this respect, that art and industry would never be able to master; and their very natures seem to want a foundation to raise on it that which other men easily attain unto—— Amongst men of equal education there is great inequality of parts. And the woods of America, as well as the schools of Athens, produce men of several abilities in the same kind. Though this be so, yet I imagine most men come very short of what they might attain unto in their several degrees by a neglect of their understandings. A few rules of logic are thought sufficient in this case for those who pretend to the highest improvement; whereas, I think there are a great many natural defects in the understanding capable of amendment, which are overlooked and wholly neglected. And it is easy to perceive that men are guilty of a great many faults in the exercise and improvement of this faculty of the mind, which hinder them in their progress, and keep them in ignorance and error all their lives. Some of them I shall take notice of, and endeavour to point out proper remedies for in the following discourse.

§ 3. *Reasoning.*

Besides the want of determined ideas, and of sagacity, and exercise in finding out, and laying in order intermediate ideas, there are three miscarriages that men are guilty of in reference to their reason, whereby this faculty is hindered in them from that service it might do and was designed for. And he that reflects upon the actions and discourses of mankind, will find their defects in this kind very frequent, and very observable.

1. The first is of those who seldom reason at all, but do and think according to the example of others, whether parents, neighbours, ministers, or who else they are pleased to make choice of to have an implicit faith in, for the saving of themselves the pains and trouble of thinking and examining for themselves.

2. The second is of those who put passion in the place of reason, and being resolved what shall govern their actions and arguments, neither use their own, nor hearken to other people's reason, any farther than it suits their humour, interest, or party; and these one may observe commonly content themselves with words which have no distinct ideas to them, though, in other matters that they come with an unbiassed indifferency to, they

want not abilities to talk and hear reason, where they have no secret inclination that hinders them from being tractable to it.

3. The third sort is of those who readily and sincerely follow reason, but for want of having that which one may call *large*, *sound*, *round-about sense*, have not a full view of all that relates to the question, and may be of moment to decide it. We are all short-sighted, and very often see but one side of a matter; our views are not extended to all that has a connection with it. From this defect I think no man is free. We see but in part, and we know but in part, and therefore it is no wonder we conclude not right from our partial views. This might instruct the proudest esteemer of his own parts, how useful it is to talk and consult with others, even such as come short of him in capacity, quickness and penetration: for, since no one sees all, and we generally have different prospects of the same thing, according to our different, as I may say, positions to it, it is not incongruous to think, nor beneath any man to try, whether another may not have notions of things which have escaped him, and which his reason would make use of if they came into his mind. The faculty of reasoning seldom or never deceives those who trust to it; its consequences from what it builds on are evident

and certain, but that which it oftenest, if not only, misleads us in, is, that the principles from which we conclude, the grounds upon which we bottom our reasoning, are but a part, something is left out which should go into the reckoning to make it just and exact. Here we may imagine a vast and almost infinite advantage that angels and separate spirits may have over us; who, in their several degrees of elevation above us, may be endowed with more comprehensive faculties, and some of them perhaps having perfect and exact views of all finite beings that come under their consideration, can as it were, in the twinkling of an eye, collect together all their scattered and almost boundless relations. A mind so furnished, what reason has it to acquiesce in the certainty of its conclusions!

In this we may see the reason why some men of study and thought, that reason right, and are lovers of truth, do make no great advances in their discoveries of it. Error and truth are uncertainly blended in their minds; their decisions are lame and defective, and they are very often mistaken in their judgments: the reason whereof is, they converse but with one sort of men, they read but one sort of books, they will not come in the hearing but of one sort of notions; the truth is they canton out to themselves a little Goshen in the intellectual world, where light

shines, and as they conclude, day blesses them; but the rest of that vast *expansum* they give up to night and darkness, and so avoid coming near it. They have a pretty traffic with known correspondents in some little creek; within that they confine themselves, and are dexterous managers enough of the wares and products of that corner with which they content themselves, but will not venture out into the great ocean of knowledge, to survey the riches that nature hath stored other parts with, no less genuine, no less solid, no less useful, than what has fallen to their lot in the admired plenty and sufficiency of their own little spot, which to them contains whatsoever is good in the universe. Those who live thus mewed up within their own contracted territories, and will not look abroad beyond the boundaries that chance, conceit, or laziness has set to their inquires, but live separate from the notions, discourses, and attainments of the rest of mankind, may not amiss be represented by the inhabitants of the Marian islands; who being separated by a large tract of sea from all communion with the habitable parts of the earth, thought themselves the only people of the world. And though the straitness of the conveniences of life amongst them had never reached so far as to the use of fire, till the Spaniards, not many years since, in their voyages

from Acapulco to Manilla, brought it amongst them: yet in the want and ignorance of almost all things, they looked upon themselves, even after that the Spaniards had brought amongst them the notice of variety of nations abounding in sciences, arts, and conveniences of life, of which they knew nothing, they looked upon themselves, I say, as the happiest and wisest people of the universe. But for all that, nobody, I think, will imagine them deep naturalists, or solid metaphysicians; nobody will deem the quickest-sighted among them to have very enlarged views in ethics or politics, nor can any one allow the most capable amongst them to be advanced so far in his understanding, as to have any other knowledge but of the few little things of his and the neighbouring islands within his commerce; but far enough from that comprehensive enlargement of mind which adorns a soul devoted to truth, assisted with letters, and a free generation of the several views and sentiments of thinking men of all sides. Let not men, therefore, that would have a sight of what every one pretends to be desirous to have a sight of, truth in its full extent, narrow and blind their own prospect. Let not men think there is no truth but in the sciences that they study, or the books that they read. To prejudge other men's notions before we have looked into them, is

not to show their darkness, but to put out our own eyes. *Try all things, hold fast that which is good*, is a divine rule, coming from the Father of light and truth; and it is hard to know what other way men can come at truth, to lay hold of it, if they do not dig and search for it as for gold and hid treasure: but he that does so must have much earth and rubbish before he gets the pure metal; sand, and pebbles, and dross usually lie blended with it, but the gold is nevertheless gold, and will enrich the man that employs his pains to seek and separate it. Neither is there any danger he should be deceived by the mixture. Every man carries about him a touchstone, if he will make use of it, to distinguish substantial gold from superficial glitterings, truth from appearances. And indeed the use and benefit of this touchstone, which is natural reason, is spoiled and lost only by assuming prejudices, over-weening presumption, and narrowing our minds. The want of exercising it in the full extent of things intelligible, is that which weakens and extinguishes this noble faculty in us. Trace it, and see whether it be not so. The day-labourer in a country village has commonly but a small pittance of knowledge, because his ideas and notions have been confined to the narrow bounds of a poor conversation and employment: the low mechanic of a country town

does somewhat outdo him ; porters and coblers of great cities surpass them. A country gentleman who, leaving Latin and learning in the university, removes thence to his mansion-house, and associates with neighbours of the same strain, who relish nothing but hunting and a bottle ; with those alone he spends his time, with those alone he converses, and can away with no company whose discourse goes beyond what claret and dissoluteness inspire. Such a patriot formed in this happy way of improvement, cannot fail, as we see, to give notable decisions upon the bench at quarter-sessions, and eminent proofs of his skill in politics when the strength of his purse and party have advanced him to a more conspicuous station. To such a one truly an ordinary coffee-house gleaner of the city is an errant statesman, and as much superior to, as a man, conversant about Whitehall and the court, is to an ordinary shopkeeper. To carry this a little farther Here is one muffled up in the zeal and infallibility of his own sect, and will not touch a book, or enter into debate with a person that will question any of those things which to him are sacred. Another surveys our differences in religion with an equitable and air indifference, and so finds probably that none of them are in every thing unexceptionable. These divisions and systems were made by men, and carry the mark of fallible on

them ; and in those whom he differs from, and till he opened his eyes, had a general prejudice against, he meets with more to be said for a great many things than before he was aware of, or could have imagined. Which of these two, now, is most likely to judge right in our religious controversies, and to be most stored with truth, the mark all pretend to aim at ? All these men, that I have instanced in, thus unequally furnished with truth, and advanced in knowledge, I suppose of equal natural parts ; all the odds between them has been the different scope that has been given to their understandings to range in, for the gathering up of information, and furnishing their heads with ideas and notions and observations, whereon to employ their mind and form their understandings.

It will possibly be objected, "who is sufficient for all this ?" I answer, more than can be imagined. Every one knows what his proper business is, and what, according to the character he makes of himself, the world may justly expect of him ; and, to answer that, he will find he will have time and opportunity enough to furnish himself, if he will not deprive himself, by a narrowness of spirit, of those helps that are at hand. I do not say, to be a good geographer, that a man should visit every mountain, river, promontory, and creek, upon the face of the earth, view the buildings,

and survey the land every where, as if he were going to make a purchase; but yet every one must allow that he shall know a country better, that makes often sallies into it, and traverses up and down, than he that, like a mill-horse, goes still round in the same track, or keeps within the narrow bounds of a field or two that delight him. He that will inquire out the best books in every science, and inform himself of the most material authors of the several sects of philosophy and religion, will not find it an infinite work to acquaint himself with the sentiments of mankind, concerning the most weighty and comprehensive subjects. Let him exercise the freedom of his reason and understanding in such a latitude as this, and his mind will be strengthened, his capacity enlarged, his faculties improved; and the light, which the remote and scattered parts of truth will give to one another, will so assist his judgment, that he will seldom be widely out, or miss giving proof of a clear head and a comprehensive knowledge. At least, this is the only way I know to give the understanding its due improvement to the full extent of its capacity, and to distinguish the two most different things I know in the world, a logical chicaner from a man of reason. Only he, that would thus give the mind its flight, and send abroad his inquiries into all parts after truth, must be sure to settle

in his head determined ideas of all that he employs his thoughts about, and never fail to judge himself, and judge unbiassedly, of all that he receives from others, either in their writings or discourses. Reverence or prejudice must not be suffered to give beauty or deformity to any of their opinions.

§ 4. *Of Practice and Habits.*

We are born with faculties and powers capable almost of any thing, such at least as would carry us farther than can easily be imagined: but it is only the exercise of those powers which gives us ability and skill in any thing, and leads us towards perfection.

A middle-aged ploughman will scarce ever be brought to the carriage and language of a gentleman, though his body be as well proportioned, and his joints as supple, and his natural parts not any way inferior. The legs of a dancing-master, and the fingers of a musician, fall as it were naturally, without thought or pains, into regular and admirable motions. Bid them change their parts, and they will in vain endeavour to produce like motions in the members not used to them, and it will require length of time and long practice to attain but some degrees of a like ability. What incredible and astonishing actions do we find rope-dancers and tumblers bring their bodies to!

Not but that sundry, in almost all manual arts, are as wonderful; but I name those which the world takes notice of for such, because on that very account they give money to see them. All these admired motions, beyond the reach and almost conception of unpractised spectators, are nothing but the mere effects of use and industry in men, whose bodies have nothing peculiar in them from those of the amazed lookers on.

As it is in the body, so it is in the mind; practice makes it what it is, and most even of those excellencies, which are looked on as natural endowments, will be found, when examined into more narrowly, to be the product of exercise, and to be raised to that pitch only by repeated actions. Some men are remarked for pleasantness in raillery; others for apologues and apposite diverting stories. This is apt to be taken for the effect of pure nature, and that the rather, because it is not got by rules, and those who excel in either of them never purposely set themselves to the study of it, as an art to be learnt. But yet it is true that at first some lucky hit, which took with somebody, and gained him commendation, encouraged him to try again, inclined his thoughts and endeavours that way, till at last he insensibly got a facility in it, without perceiving how; and that is attributed wholly to nature, which was much more the effect of

use and practice. I do not deny that natural disposition may often give the first rise to it, but that never carries a man far, without use and exercise; and it is practice alone that brings the powers of the mind, as well as those of the body, to their perfection. Many a good poetic vein is buried under a trade, and never produces any thing for want of improvement. We see the ways of discourse and reasoning are very different, even concerning the same matter, at court and in the university. And he that will go but from Westminster-hall to the Exchange, will find a different genius and turn in their ways of talking; and yet one cannot think that all whose lot fell in the city were born with different parts from those who were bred at the university or inns of court.

To what purpose all this, but to show that the difference, so observable in men's understandings and parts, does not arise so much from their natural faculties as acquired habits. He would be laughed at that should go about to make a fine dancer out of a country hedger, at past fifty. And he will not have much better success, who shall endeavour, at that age, to make a man reason well, or speak handsomely, who has never been used to it, though you should lay before him a collection of all the best precepts of logic or oratory. Nobody is made any thing by hearing of rules, or laying them up in his memory;

practice must settle the habit of doing without reflecting on the rule, and you may as well hope to make a good painter or musician extempore by a lecture and instruction in the arts of music and painting, as a coherent thinker, or a strict reasoner, by a set of rules, showing him wherein right reasoning consists.

This being so, that defects and weakness in men's understandings, as well as other faculties, come from want of a right use of their own minds, I am apt to think the fault is generally mislaid upon nature, and there is often a complaint of want of parts, when the fault lies in want of a due improvement of them. We see men frequently dexterous and sharp enough in making a bargain, who, if you reason with them about matters of religion, appear perfectly stupid.

§ 5. *Ideas.*

I WILL not here, in what relates to the right conduct and improvement of the understanding, repeat again the getting clear and determined ideas, and the employing our thoughts rather about them than about sounds put for them, nor of settling the signification of words which we use with ourselves in the search of truth, or with others in discoursing about it.—Those hinderances of our understandings in the pursuit of knowledge I have

sufficiently enlarged upon in another place; so that nothing more needs here to be said of those matters.

6. *Principles.*

THERE is another fault that stops or misleads men in their knowledge, which I have also spoken something of, but yet is necessary to mention here again, that we may examine it to the bottom, and see the root it springs from, and that is a custom of taking up with principles that are not self-evident, and very often not so much as true. It is not unusual to see men rest their opinions upon foundations that have no more certainty and solidity than the propositions built on them, and embraced for their sake. Such foundations are these and the like, viz. The founders or leaders of my party are good men, and therefore their tenets are true; it is the opinion of a sect that is erroneous, therefore it is false; it hath been long received in the world, therefore it is true; or it is new, and therefore false.

These, and many the like, which are by no means the measures of truth and falsehood, the generality of men make the standards by which they accustom their understanding to judge. And thus they falling into a habit of determining of truth and falsehood by such wrong measures, it is no wonder they should

embrace error for certainty, and be very positive in things they have no ground for.

There is not any, who pretends to the least reason, but, when any of these his false maxims are brought to the test, must acknowledge them to be fallible, and such as he will not allow in those that differ from him; and yet after he is convinced of this, you shall see him go on in the use of them, and the very next occasion that offers, argue again upon the same grounds. Would one not be ready to think that men are willing to impose upon themselves, and mislead their own understandings, who conduct them by such wrong measures, even after they see they cannot be relied on? But yet they will not appear so blameable as may be thought at first sight; for I think there are a great many that argue thus in earnest, and do it not to impose on themselves or others. They are persuaded of what they say, and think there is weight in it, though in a like case they have been convinced there is none; but men would be intolerable to themselves, and contemptible to others, if they should embrace opinions without any ground, and hold what they could give no manner of reason for. True or false, solid or sandy, the mind must have some foundation to rest itself upon, and, as I have remarked in another place, it no sooner entertains any proposi-

tion, but it presently hastens to some hypothesis to bottom it on, till then it is unquiet and unsettled.—So much do our own very tempers dispose us to a right use of our understandings, if we would follow as we should the inclinations of our nature.

In some matters of concernment, especially those of religion, men are not permitted to be always wavering and uncertain, they must embrace and profess some tenets or other; and it would be a shame, nay a contradiction too heavy for any one's mind to lie constantly under, for him to pretend seriously to be persuaded of the truth of any religion, and yet not be able to give any reason of his belief, or to say any thing for his preference of this to any other opinion; and therefore they must make use of some principles or other, and those can be no other than such as they have and can manage: and to say they are not in earnest persuaded by them, and do not rest upon those they make use of, is contrary to experience, and to allege that they are not misled when we complain they are.

If this be so, it will be urged, why then do they not make use of sure and unquestionable principles, rather than rest on such grounds as may deceive them, and will, as is visible, serve to support error as well as truth?

To this I answer, the reason why they do

not make use of better and surer principles, is because they cannot: but this inability proceeds not from want of natural parts (for those few whose case that is are to be excused) but for want of use and exercise. Few men are from their youth accustomed to strict reasoning, and to trace the dependence of any truth in a long train of consequences to its remotest principles, and to observe its connection; and he that by frequent practice has not been used to this employment of his understanding, it is no more wonder that he should not, when he is grown into years, be able to bring his mind to it, than that he should not be on a sudden able to grave or design, dance on the ropes, or write a good hand, who has never practised either of them.

Nay, the most of men are so wholly strangers to this, that they do not so much as perceive their want of it; they despatch the ordinary business of their callings by rote, as we say, as they have learned it; and if at any time they miss success, they impute it to any thing rather than want of thought or skill; that they conclude (because they know no better) they have in perfection; or if there be any subject that interest or fancy has recommended to their thoughts, their reasoning about it is still after their own fashion; be it better or worse, it serves their turns, and

is the best they are acquainted with; and therefore when they are led by it into mistakes, and their business succeeds accordingly, they impute it to any cross accident, or default of others, rather than to their own want of understanding; that is, what nobody discovers or complains of in himself. Whatsoever made his business to miscarry, it was not want of right thought and judgment in himself: he sees no such defect in himself, but is satisfied that he carries on his designs well enough by his own reasoning, or at least should have done, had it not been for unlucky traverses not in his power. Thus being content with this short and very imperfect use of his understanding, he never troubles himself to seek out methods of improving his mind, and lives all his life without any notion of close reasoning, in a continued connection of a long train of consequences from sure foundations, such as is requisite for the making out and clearing most of the speculative truths most men own to believe and are most concerned in. Not to mention here what I shall have occasion to insist on by and by more fully, viz. that in many cases it is not one series of consequences will serve the turn, but many different and opposite deductions must be examined and laid together, before a man can come to make a right judgment of the point in question. What

then can be expected from men that neither see the want of any such kind of reasoning as this: nor, if they do, know how to set about it, or could perform it? You may as well set a countryman, who scarce knows the figures, and never cast up a sum of three particulars, to state a merchant's long account, and find the true balance of it.

What then should be done in the case? I answer, we should always remember what I said above, that the faculties of our souls are improved and made useful to us just after the same manner as our bodies are. Would you have a man write or paint, dance or fence well, or perform any other manual operation dexterously and with ease; let him have ever so much vigour and activity, suppleness and address naturally, yet nobody expects this from him, unless he has been used to it, and has employed time and pains in fashioning and forming his hand, or outward parts to these motions. Just so it is in the mind: would you have a man reason well, you must use him to it betimes, exercise his mind in observing the connexion of ideas, and following them in train. Nothing does this better than mathematics, which, therefore, I think should be taught all those who have the time and opportunity; not so much to make them mathematicians, as to make them reasonable creatures; for though we all call ourselves so, because

we are born to it, if we please; yet we may truly say, nature gives us but the seeds of it: we are born to be, if we please, rational creatures; but it is use and exercise only that make us so, and we are, indeed, so no farther than industry and application have carried us. And, therefore, in ways of reasoning, which men have not been used to, he that will observe the conclusions they take up, must be satisfied they are not all rational.

This has been the less taken notice of, because every one, in his private affairs, uses some sort of reasoning or other, enough to denominate him reasonable. But the mistake is, that he that is found reasonable in one thing, is concluded to be so in all, and to think or to say otherwise is thought so unjust an affront, and so senseless a censure, that nobody ventures to do it. It looks like the degradation of a man below the dignity of his nature. It is true, that he that reasons well in any one thing has a mind naturally capable of reasoning well in others, and to the same degree of strength and clearness, and possibly much greater, had his understanding been so employed. But it is as true that he who can reason well to-day about one sort of matters, cannot at all reason to-day about others, though perhaps a year hence he may. But wherever a man's rational faculty fails him, and will not serve him to reason, there we

cannot say he is rational, how capable soever he may be, by time and exercise, to become so.

Try in men of low and mean education, who have never elevated their thoughts above the spade and the plough, nor looked beyond the ordinary drudgery of a day-labourer. Take the thoughts of such an one, used for many years to one track, out of that narrow compass, he has been all his life confined to, you will find him no more capable of reasoning than almost a perfect natural. Some one or two rules, on which their conclusions immediately depend, you will find in most men have governed all their thoughts; these, true or false, have been the maxims they have been guided by: take these from them, and they are perfectly at a loss, their compass and pole-star then are gone, and their understanding is perfectly at a nonplus; and therefore they either immediately return to their old maxims again, as the foundations of all truth to them, notwithstanding all that can be said to show their weakness; or if they give them up to their reasons, they, with them, give up all truth and farther inquiry, and think there is no such thing as certainty. For if you would enlarge their thoughts, and settle them upon more remote and surer principles, they either cannot easily apprehend them; or, if they can, know not what use to make of them; for

long deductions from remote principles are what they have not been used to, and cannot manage.

What then, can grown men never be improved, or enlarged in their understandings? I say not so; but this I think I may say, that it will not be done without industry and application, which will require more time and pains than grown men, settled in their course of life, will allow to it, and therefore very seldom is done. And this very capacity of attaining it, by use and exercise only, brings us back to that which I laid down before, that it is only practice that improves our minds as well as bodies, and we must expect nothing from our understandings, any farther than they are perfected by habits.

The Americans are not all born with worse understandings than the Europeans, though we see none of them have such reaches in the arts and sciences. And, among the children of a poor countryman, the lucky chance of education, and getting into the world, gives one infinitely the superiority in parts over the rest, who, continuing at home, had continued also just of the same size with his brethren.

He that has to do with young scholars, especially in mathematics, may perceive how their minds open by degrees, and how it is exercise alone that opens them. Sometimes they will stick a long time at a part of demonstra-

tion, not for want of will and application, but really for want of perceiving the connexion of two ideas, that, to one whose understanding is more exercised, is as visible as any thing can be. The same would be with a grown man beginning to study mathematics; the understanding, for want of use, often sticks in every plain way, and he himself that is so puzzled, when he comes to see the connexion, wonders what it was he stuck at, in a case so plain.

§ 7. *Mathematics.*

I HAVE mentioned mathematics as a way to settle in the mind a habit of reasoning closely and in train; not that I think it necessary that all men should be deep mathematicians, but that, having got the way of reasoning, which that study necessarily brings the mind to, they might be able to transfer it to other parts of knowledge, as they shall have occasion. For, in all sorts of reasoning, every single argument should be managed as a mathematical demonstration: the connexion and dependence of ideas should be followed, till the mind is brought to the source on which it bottoms, and observes the coherence all along, though in proofs of probability one such train is not enough to settle the judgment, as in demonstrative knowledge.

Where a truth is made out by one demonstration, there needs no farther inquiry; but in probabilities, where there wants demonstration to establish the truth beyond doubt, there it is not enough to trace one argument to its source, and observe its strength and weakness, but all the arguments, after having been so examined on both sides, must be laid in balance one against another, and, upon the whole, the understanding determine its assent.

This is a way of reasoning the understanding should be accustomed to, which is so different from what the illiterate are used to, that even learned men oftentimes seem to have very little or no notion of it. Nor is it to be wondered, since the way of disputing, in the schools, leads them quite away from it, by insisting on one topical argument, by the success of which the truth or falsehood of the question is to be determined, and victory adjudged to the opponent or defendant; which is all one as if one should balance an account by one sum, charged and discharged, when there are an hundred others to be taken into consideration.

This, therefore, it would be well if mens' minds were accustomed to, and that early; that they might not erect their opinions upon one single view, when so many other are requisite to make up the account, and must come into the reckoning, before a man can form a

right judgment. This would enlarge their minds, and give a due freedom to their understandings, that they might not be led into error by presumption, laziness, or precipitancy; for I think nobody can approve such a conduct of the understanding as should mislead it from truth, though it be ever so much in fashion to make use of it.

To this perhaps it will be objected, that to manage the understanding as I propose would require every man to be a scholar, and to be furnished with all the materials of knowledge, and exercised in all the ways of reasoning. To which I answer, that it is a shame for those that have time, and the means to attain knowledge, to want any helps or assistance, for the improvement of their understandings, that are to be got; and to such I would be thought here chiefly to speak. Those methinks, who by the industry and parts of their ancestors, have been set free from a constant drudgery to their backs and their bellies, should bestow some of their spare time on their heads, and upon their minds, by some trials and essays, in all the sorts and matters of reasoning. I have before mentioned mathematics, wherein algebra gives new helps and views to the understanding. If I propose these, it is not, as I said, to make every man a thorough mathematician, or a deep algebraist; but yet I think the study of them is of

infinite use, even to grown men; first, by experimentally convincing them, that to make any one reason well, it is not enough to have parts wherewith he is satisfied, and that serve him well enough in his ordinary course. A man in those studies will see, that however good he may think his understanding, yet in many things, and those very visible, it may fail him. This would take off that presumption that most men have of themselves in this part; and they would not be so apt to think their minds wanted no helps to enlarge them, that there could be nothing added to the acuteness and penetration of their understandings.

Secondly, The study of mathematics would show them the necessity there is in reasoning, to separate all the distinct ideas, and see the habitudes that all those concerned in the present inquiry have to one another, and to lay by those which relate not to the proposition in hand, and wholly to leave them out of the reckoning. This is that which in other subjects, besides quantity, is what is absolutely requisite to just reasoning, though in them it is not so easily observed, nor so carefully practised. In those parts of knowledge where it is thought demonstration has nothing to do, men reason as it were in the lump; and if, upon a summary and confused view, or upon a partial consideration, they can raise the ap-

pearance of a probability, they usually rest content; especially if it be in a dispute where every little straw is laid hold on, and every thing that can but be drawn in any way to give colour to the argument is advanced with ostentation. But that mind is not in a posture to find the truth, that does not distinctly take all the parts asunder, and, omitting what is not at all to the point, draw a conclusion from the result of all the particulars which any way influence it. There is another no less useful habit to be got by an application to mathematical demonstrations, and that is, of using the mind to a long train of consequences; but having mentioned that already, I shall not again here repeat it.

As to men whose fortunes and time are narrower, what may suffice them is not of that vast extent as may be imagined and so comes not within the objection.

Nobody is under an obligation to know every thing. Knowledge and science in general is the business only of those who are at ease and leisure. Those who have particular callings ought to understand them; and it is no unreasonable proposal, nor impossible to be compassed, that they should think and reason right about what is their daily employment. This one cannot think them incapable of, without levelling them with the brutes,

and charging them with a stupidity below the rank of rational creatures.

§ 8. *Religion.*

Besides his particular calling for the support of this life, every one has a concern in a future life, which he is bound to look after. This engages his thoughts in religion ; and here it mightily lies upon him to understand and reason right. Men, therefore, cannot be excused from understanding the words, and framing the general notions relating to religion, right. The one day of seven, besides other days of rest, allows in the Christian world time enough for this (had they no other idle hours) if they would but make use of these vacancies from their daily labour, and apply themselves to an improvemnt of knowledge with as much diligence as they often do to a great many other things that are useless, and had but those that would enter them according to their several capacities in a right way to this knowledge. The original make of their minds is like that of other men, and they would be found not to want understanding fit to receive the knowledge of religion, if they were a little encouraged and helped in it, as they should be. For there are instances of very mean people, who have raised their minds to a great sense and understanding of

religion: and though these have not been so frequent as could be wished; yet they are enough to clear that condition of life from a necessity of gross ignorance, and to show that more might be brought to be rational creatures and Christians (for they can hardly be thought really to be so, who, wearing the name, know not so much as the very principles of that religion) if due care were taken of them. For, If I mistake not, the peasantry lately in France (a rank of people under a much heavier pressure of want and poverty than the day-labourers in England) of the reformed religion understood it much better, and could say more for it than those of a higher condition among us.

But if it shall be concluded that the meaner sort of people must give themselves up to brutish stupidity in the things of their nearest concernment, which I see no reason for, this excuses not those of a freer fortune and education, if they neglect their understandings, and take no care to employ them as they ought, and set them right in the knowledge of those things for which principally they were given them. At least those, whose plentiful fortunes allow them the opportunities and helps of improvements, are not so few, but that it might be hoped great advancements might be made in knowledge of all kinds, especially in that of the greatest con-

cern and largest views, if men would make a right use of their faculties, and study their own understandings.

§ 9. *Ideas.*

Outward corporeal objects, that constantly importune our senses, and captivate our appetites, fail not to fill our heads with lively and lasting ideas of that kind. Here the mind needs not to be set upon getting greater store; they offer themselves fast enough, and are usually entertained in such plenty, and lodged so carefully, that the mind wants room or attention for others that it has more use and need of. To fit the understanding therefore for such reasoning as I have been above speaking of, care should be taken to fill it with moral and more abstract ideas; for these not offering themselves to the senses, but being to be framed to the understanding people are generally so neglectful of a faculty they are apt to think wants nothing, that I fear most men's minds are more unfurnished with such ideas than is imagined. They often use the words, and how can they be suspected to want the ideas? What I have said in the third book of my Essay, will excuse me from any other answer to this question. But to convince people of what moment it is to their understandings to be furnished with

such abstract ideas steady and settled in them, give me leave to ask how any one shall be able to know whether he be obliged to be just, if he has not established ideas in his mind of obligation and of justice, since knowledge consists in nothing but the perceived agreement or disagreement of those ideas? and so of all others the like, which concern our lives and manners. And if men do find a difficulty to see the agreement or disagreement of two angles which lie before their eyes, unalterable in a diagram, how utterly impossible will it be to perceive it in ideas that have no other sensible objects to represent them to the mind but sounds, with which they have no manner of conformity, and therefore had need to be clearly settled in the mind themselves, if we would make any clear judgment about them. This therefore is one of the first things the mind should be employed about in the right conduct of the understanding, without which it is impossible it should be capable of reasoning right about those matters. But in these, and all other ideas, care must be taken that they harbour no inconsistencies, and that they have a real existence where real existence is supposed, and are not mere chimeras with a supposed existence.

§ 10. *Prejudice.*

Every one is forward to complain of the prejudices that mislead other men or parties, as if he were free, and had none of his own. This being objected on all sides, it is agreed, that it is a fault and an hinderance to knowledge. What now is the cure ? No other but this, that every man should let alone other's prejudices, and examine his own.—Nobody is convinced of his by the accusation of another, he recriminates by the same rule, and is clear. The only way to remove this great cause of ignorance and error out of the world is for every one impartially to examine himself. If others will not deal fairly with their own minds, does that make my errors truths ? or ought it to make me in love with them, and willing to impose on myself ? If others love cataracts in their eyes, should that hinder me from couching mine as soon as I can ? Every one declares against blindness, and yet who almost is not fond of that which dims his sight and keeps the clear light out of his mind, which should lead him into truth and knowledge ? False or doubtful positions, relied upon as unquestionable maxims, keep those in the dark from truth who build on them. Such are usually the prejudices imbibed from education, party, rever-

ence, fashion, interest, &c. This is the mote which every one sees in his brother's eye, but never regards the beam in his own. For who is there almost that is ever brought fairly to examine his own principles, and see whether they are such as will bear the trial? But yet this should be one of the first things every one should set about, and be scrupulous in, who would rightly conduct his understanding in the search of truth and knowledge.

To those who are willing to get rid of this great hinderance of knowledge (for to such only I write) to those who would shake off this great and dangerous impostor prejudice, who dresses up falsehood in the likeness of truth, and so dexterously hoodwinks men's minds, as to keep them in the dark, with a belief that they are more in the light than any that do not see with their eyes; I shall offer this one mark whereby prejudice may be known. He that is strongly of any opinion, must suppose (unless he be self-condemned) that his persuasion is built upon good grounds; and that his assent is no greater than what the evidence of the truth he holds forces him to; and that they are arguments, and not inclination or fancy, that make him so confident and positive in his tenets. Now, if after all his profession, he cannot bear any opposition to his opinion, if

he cannot so much as give a patient hearing, much less examine and weigh the arguments on the other side, does he not plainly confess it is prejudice governs him? and it is not the evidence of truth, but some lazy anticipation, some beloved presumption that he desires to rest undisturbed in. For if what he holds be, as he gives out, well fenced with evidence, and he sees it to be true, what need he fear to put it to the proof? If his opinion be settled upon a firm foundation, if the arguments that support it, and have obtained his assent, be clear, good, and convincing, why should he be shy to have it tried whether they be proof or not? He whose assent goes beyond his evidence, owes this excess of his adherence only to prejudice, and does in effect own it, when he refuses to hear what is offered against it; declaring thereby, that it is not evidence he seeks, but the quiet enjoyment of the opinion he is fond of, with a forward condemnation of all that may stand in opposition to it, unheard and unexamined; which, what is it but prejudice? *Qui æquum statuerit parte inaudita altera etiamsi æquum statuerit, haud æquus fuerit.* He that would acquit himself in this case as a lover of truth, not giving way to any preoccupation or bias that may mislead him, must do two things that are not very common, nor very easy.

§ 11. *Indifferency.*

First, he must not be in love with any opinion, or wish it to be true, till he knows it to be so, and then he will not need to wish it; for nothing that is false can deserve our good wishes, nor a desire that it should have the place and force of truth; and yet nothing is more frequent than this. Men are fond of certain tenets upon no other evidence but respect and custom, and think they must maintain them, or all is gone; though they have never examined the ground they stand on, nor have ever made them out to themselves, or can make them out to others: we should contend earnestly for the truth, but we should first be sure that it is truth, or else we fight against God, who is the God of truth, and do the work of the devil, who is the father and propagator of lies; and our zeal, though ever so warm, will not excuse us, for this is plainly prejudice.

§ 12. *Examine.*

Secondly, he must do that which he will find himself very averse to, as judging the thing unnecessary, or himself incapable of doing it. He must try whether his principles be certainly true, or not, and how far he may safely rely upon them. This, whether fewer

have the heart or the skill to do, I shall not determine ; but this, I am sure, is that which every one ought to do, who professes to love truth, and would not impose upon himself ; which is a surer way to be made a fool of than by being exposed to the sophistry of others. The disposition to put any cheat upon ourselves works constantly, and we are pleased with it, but are impatient of being bantered or misled by others. The inability I here speak of is not any natural defect that makes men incapable of examining their own principles. To such, rules of conducting their understandings are useless; and that is the case of very few. The great number is of those whom the ill habit of never exerting their thoughts has disabled ; the powers of their minds are starved by disuse, and have lost that reach and strength which nature fitted them to receive from exercise. Those who are in a condition to learn the first rules of plain arithmetic, and could be brought to cast up an ordinary sum, are capable of this, if they had but accustomed their minds to reasoning : but they that have wholly neglected the exercise of their understandings in this way, will be very far, at first, from being able to do it, and as unfit for it as one unpractised in figures to cast up a shop-book, and, perhaps, think it as strange to be set about it. And yet it must nevertheless be

confessed to be a wrong use of our understandings, to build our tenets (in things where we are concerned to hold the truth) upon principles that may lead us into error. We take our principles at hap-hazard, upon trust, and without ever having examined them, and then believe a whole system, upon a presumption that they are true and solid ; and what is all this, but childish, shameful, senseless credulity ?

In these two things, viz. an equal indifferency for all truth ; I mean the receiving it, the love of it, as truth, but not loving it for any other reason, before we know it to be true ; and in the examination of our principles, and not receiving any for such, nor building on them, till we are fully convinced, as rational creatures, of their solidity, truth, and certainty ; consists that freedom of the understanding which is necessary to a rational creature, and without which it is not truly an understanding. It is conceit, fancy, extravagance, any thing rather than understanding, if it must be under the constraint of receiving and holding opinions by the authority of any thing but their own, not fancied, but perceived, evidence. This was rightly called imposition, and is of all other the worst and most dangerous sort of it. For we impose upon ourselves, which is the strongest imposition of all others; and we

impose upon ourselves in that part which ought with the greatest care to be kept free from all imposition. The world is apt to cast great blame on those who have an indifferency for opinions, especially in religion. I fear this is the foundation of great error and worse consequences. To be indifferent which of two opinions is true, is the right temper of the mind that preserves it from being imposed on, and disposes it to examine with that indifferency, till it has done its best to find the truth, and this is the only direct and safe way to it. But to be indifferent whether we embrace falsehood or truth, is the great road to error. Those who are not indifferent which opinion is true, are guilty of this; they suppose without examining, that what they hold is true, and they think they ought to be zealous for it. Those, it is plain by their warmth and eagerness, are not indifferent for their own opinions, but methinks are very indifferent whether they be true or false; since they cannot endure to have any doubts raised, or objections made against them; and it is visible they never have made any themselves, and so, never having examined, know not, nor are concerned, as they should be, to know whether they be true or false.

These are the common and most general miscarriages which I think men should avoid, or rectify, in a right conduct of their under-

standings, and should be particularly taken care of in education. The business whereof, in respect of knowledge, is not, as I think, to perfect a learner in all or any one of the sciences, but to give his mind that freedom, that disposition, and those habits, that may enable him to attain any part of knowledge he shall apply himself to, or stand in need of in the future course of his life.

This, and this only, is well principling, and not the instilling a reverence and veneration for certain dogmas, under the specious title of principles, which are often so remote from that truth and evidence which belongs to principles, that they ought to be rejected, as false and erroneous ; and often cause men so educated, when they come abroad into the world, and find they cannot maintain the principles so taken up and rested in, to cast off all principles, and turn perfect skeptics, regardless of knowledge and virtue.

There are several weaknesses and defects in the understanding, either from the natural temper of the mind, or ill habits taken up, which hinder it in its progress to knowledge. Of these, there are as many, possibly, to be found, if the mind were thoroughly studied, as there are diseases of the body, each whereof clogs and disables the understanding to some degree, and therefore deserves to be looked after and cured I shall set down some few

to excite men, especially those who make knowledge their business, to look into themselves, and observe whether they do not indulge some weaknesses, allow some miscarriages in the management of their intellectual faculty, which is prejudicial to them in the search of truth.

§ 13. *Observations*

Particular matters of fact are the undoubted foundations on which our civil and natural knowledge is built: the benefit the understanding makes of them is to draw from them conclusions, which may be as standing rules of knowledge, and consequently of practice. The mind often makes not that benefit it should of the information it receives from the accounts of civil or natural historians, by being too forward or too slow in making observations on the particular facts recorded in them.

There are those who are very assiduous, in reading, and yet do not much advance their knowledge by it. They are delighted with the stories that are told, and perhaps can tell them again, for they make all they read nothing but history to themselves; but not reflecting on it, not making to themselves observations from what they read, they are very little improved by all that crowd of

particulars, that either pass through, or lodge themselves in, their understandings. They dream on in a constant course of reading and cramping themselves, but not digesting any thing, it produces nothing but a heap of crudities.

If their memories retain well, one may say they have the materials of knowledge, but like those for building, they are of no advantage, if there be no other use made of them but to let them lie heaped up together.—Opposite to these there are others who lose the improvement they should make of matters of fact by a quite contrary conduct. They are apt to draw general conclusions, and raise axioms from every particular they may meet with. These make as little true benefit of history as the other; nay, being of forward and active spirits, receive more harm by it; it being of worse consequence to steer one's thoughts by a wrong rule, than to have none at all; error doing to busy men much more harm than ignorance to the slow and sluggish. Between these, those seem to do best, who taking material and useful hints, sometimes from single matters of fact, carry them into their minds to be judged of, by what they shall find in history to confirm or reverse these imperfect observations; which may be established into rules fit to be relied on, when they are justified by a sufficient and wary induction

of particulars. He that makes no such reflections on what he reads, only loads his mind with a rhapsody of tales fit in winter nights for the entertainment of others: and he that will improve every matter of fact into a maxim, will abound in contrary observations, that can be of no other use but to perplex and pudder him if he compares them; or else to misguide him, if he gives himself up to the authority of that, which for its novelty, or for some other fancy, best pleases him.

§ 14. *Bias.*

Next to these, we may place those, who suffer their own natural tempers and passions they are possessed with to influence their judgments, especially of men and things that may any way relate to their present circumstances and interest. Truth is all simple, all pure, will bear no mixture of any thing else with it. It is rigid and inflexible to any bye interests; and so should the understanding be, whose use and excellency lies in conforming itself to it. To think of every thing just as it is in itself, is the proper business of the understanding, though it be not that which men always employ it to. This all men, at first hearing, allow is the right use every one should make of his understanding. Nobody will be at such an open defiance with common sense, as to pro-

fess that we should not endeavour to know, and think of things as they are in themselves, and yet there is nothing more frequent than to do the contrary; and men are apt to excuse themselves, and think they have reason to do so, if they have but a pretence that it is for God, or a good cause; that is, in effect for themselves, their own persuasion or party; for to those in their turns the several sects of men especially in matters of religion, entitle God and a good cause. But God requires not men to wrong or misuse their faculties for him, nor to lie to others or themselves for his sake: which they purposely do, who will not suffer their understandings to have right conceptions of the things proposed to them, and designedly restrain themselves from having just thoughts of every thing, as far as they are concerned to inquire. And as for a good cause, that needs not such ill helps; if it be good, truth will support it, and it has no need of fallacy or falsehood.

§ 15. *Arguments.*

Very much of kin to this is the hunting after *arguments* to make good one side of a question, and wholly to neglect and refuse those which favour the other side. What is this but wilfully to misguide the understanding, and is so far from giving truth its due value,

that it wholly debases it : espouse opinions that best comport with their power, profit, or credit, and then seek arguments to support them ? Truth lit upon this way is of no more avail to us than error ; for what is so taken up by us may be false as well as true, and he has not done his duty who has thus stumbled upon truth in his way to preferment.

There is another but more innocent way of collecting arguments, very familiar among bookish men, which is to furnish themselves with the arguments they meet with pro and con in the questions they study. This helps them not to judge right, nor argue strongly, but only to talk copiously on either side, without being steady and settled in their own judgments : for such arguments gathered from other men's thoughts, floating only in the memory, are there ready indeed to supply copious talk with some appearance of reason, but are far from helping us to judge right. Such variety of arguments only distract the understanding that relies on them, unless it has gone farther than such a superficial way of examining : this is to quit truth for appearance, only to serve our vanity. The sure and only way to get true knowledge, is to form in our minds clear settled notions of things, with names annexed to those determined ideas. These we are to consider, with their several relations and habitudes, and not amuse ourselves with

floating names, and words of indetermined signification, which we can use in several senses to serve a turn. It is in the perception of the habitudes and respects our ideas have one to another, that real knowledge consists; and when a man once perceives how far they agree or disagree one with another, he will be able to judge of what other people say, and will not need to be led by the arguments of others, which are many of them nothing but plausible sophistry. This will teach him to state the question right, and see whereon it turns; and thus he will stand upon his own legs, and know by his own understanding, whereas by collecting and learning arguments by heart, he will be but a retainer to others; and when any one questions the foundations they are built upon, he will be at a nonplus, and be fain to give up his implicit knowledge.

§ 16. *Haste.*

Labour for labour-sake is against nature. The understanding, as well as all the other faculties, chooses always the shortest way to its end, would presently obtain the knowledge it is about, and then set upon some new inquiry. But this, whether laziness or haste, often misleads it, and makes it content itself with improper ways of search, and such as will not serve the turn: sometimes it rests

upon testimony, when testimony of right has nothing to do, because it is easier to believe than to be scientifically instructed: sometimes it contents itself with one argument, and rests satisfied with that, as it were a demonstration; whereas the thing under proof is not capable of demonstration, and therefore must be submitted to the trial of probabilities, and all the material arguments pro and con be examined and brought to a balance. In some cases the mind is determined by probable topics in inquiries, where demonstration may be had. All these and several others, which laziness, impatience, custom, and want of use and attention lead men into, are misapplications of the understanding in the search of truth. In every question the nature and manner of the proof it is capable of should be considered, to make our inquiry such as it should be. This would save a great deal of frequently misemployed pains, and lead us sooner to that discovery and possession of truth we are capable of. The multiplying variety of arguments, especially frivolous ones, such as are all that are merely verbal, is not only lost labour, but cumbers the memory to no purpose, and serves only to hinder it from siezing and holding of the truth in all those cases which are capable of demonstration. In such a way of proof the truth and certainty is seen, and the mind fully possesses itself of it;

when in the other way of assent it only hovers about it, is amused with uncertainties. In this superficial way, indeed, the mind is capable of more variety of plausible talk, but is not enlarged, as it should be, in its knowledge. It is to this same haste and impatience of the mind also, that a not due tracing of the arguments to their true foundation is owing; men see a little, presume a great deal, and so jump to the conclusion. This is a short way to fancy and conceit, and (if firmly embraced) to opinionatry, but is certainly the farthest way about to knowledge. For he that will know, must by the connexion of the proofs see the truth, and the ground it stands on; and therefore, if he has for haste skipped over what he should have examined, he must begin and go over all again, or else he will never come to knowledge.

§ 17. *Desultory.*

Another fault of as ill consequence as this, which proceeds also from laziness, with a mixture of vanity, is the skipping from one sort of knowledge to another. Some men's tempers are quickly weary of any one thing. Constancy and assiduity is what they cannot bear: the same study long continued in is as intolerable to them as the appearing long in

the same clothes, or fashion, is to a court-lady.

§ 18. *Smattering.*

Others, that they may seem universally knowing, get a little smattering in every thing. Both these may fill their heads with superficial notions of things, but are very much out of the way of attaining truth or knowledge.

§ 19. *Universality.*

I do not here speak against the taking a taste of every sort of knowledge; it is certainly very useful and necessary to form the mind; but then it must be done in a different way, and to a different end. Not for talk and vanity to fill the head with shreds of all kinds, that he who is possessed of such a frippery may be able to match the discourses of all he shall meet with, as if nothing could come amiss to him; and his head was so well stored a magazine, that nothing could be proposed which he was not master of, and was readily furnished to entertain any one.—This is an excellency, indeed, and a great one too, to have a real and true knowledge in all, or most of the objects of contemplation. But it is what the mind of one and the same

man can hardly attain unto ; and the instances are so few of those who have, in any measure, approached towards it, that I know not whether they are to be proposed as examples in the ordinary conduct of the understanding. For a man to understand fully the business of his particular calling in the commonwealth, and of religion, which is his calling as he is a man in the world, is usually enough to take up his whole time ; and there are few that inform themselves in these, which is every man's proper and peculiar business, so to the bottom as they should do. But though this be so, and there are very few men that extend their thoughts toward universal knowledge ; yet I do not doubt, but if the right way were taken, and the methods of inquiry were ordered as they should be, men of little business and great leisure might go a great deal farther in it than is usually done. To return to the business in hand; the end and use of a little insight in those parts of knowledge, which are not a man's proper business, is to accustom our minds to all sorts of ideas, and the proper ways of examining their habitudes and relations. This gives the mind a freedom, and the exercising the understanding in the several ways of inquiry and reasoning, which the most skilful have made use of, teaches the mind sagacity and wariness, and a suppleness to apply itself

more closely and dexterously to the bents and turns of the matter in all its researches. Besides, this universal taste of all the sciences, with an indifferency before the mind is possessed with any one in particular, and grown into love and admiration of what is made its darling, will prevent another evil, very commonly to be observed in those who have from the beginning been seasoned only by one part of knowledge. Let a man be given up to the contemplation of one sort of knowledge, and that will become every thing. The mind will take such a tincture from a familiarity with that object, that every thing else, how remote soever, will be brought under the same view. A metaphysician will bring ploughing and gardening immediately to abstract notions: the history of nature shall signify nothing to him. An alchymist, on the contrary, shall reduce divinity to the maxims of his laboratory; explain morality by sal, sulphur, and mercury; and allegorize the Scripture itself, and the sacred mysteries thereof, into the philosopher's stone. And I heard once a man, who had a more than ordinary excellency in music, seriously accommodate Moses's seven days of the first week to the notes of music, as if from thence had been taken the measure and method of the creation. It is of no small consequence to keep the mind from such a possession,

which I think is best done by giving it a fair and equal view of the whole intellectual world, wherein it may see the order, rank, and beauty of the whole, and give a just allowance to the distinct provinces of the several sciences in the due order and usefulness of each of them.

If this be that which old men will not think necessary, nor be easily brought to ; it is fit, at least, that it should be practised in the breeding of the young. The business of education, as I have already observed, is not, as I think, to make them perfect in any one of the sciences, but so to open and dispose their minds, as may best make them capable of any, when they shall apply themselves to it. If men are, for a long time, accustomed only to one sort or method of thoughts, their minds grow stiff in it, and do not readily turn to another. It is, therefore, to give them this freedom, that I think they should be made to look into all sorts of knowledge, and exercise their understandings in so wide a variety and stock of knowledge. But I do not propose it as a variety and stock of knowledge, but a variety and freedom of thinking, as an increase of the powers and activity of the mind, not as an enlargement of its possessions.

§ 20. *Reading.*

This is that which I think great readers are apt to be mistaken in. Those who have read of every thing, are thought to understand every thing too; but it is not always so. Reading furnishes the mind only with materials of knowledge; it is thinking makes what we read ours. We are of the ruminating kind, and it is not enough to cram ourselves with a great load of collections, unless we chew them over again, they will not give us strength and nourishment. There are, indeed, in some writers visible instances of deep thoughts, close and acute reasoning, and ideas well pursued. The light these would give would be of great use, if their reader would observe and imitate them; all the rest at best are but particulars fit to be turned into knowledge; but that can be done only by our own meditation, and examining the reach, force, and coherence of what is said; and then, as far as we apprehend and see the connexion of ideas, so far it is ours; without that, it is but so much loose matter floating in our brain. The memory may be stored, but the judgment is little better, and the stock of knowledge not increased, by being able to repeat what others have said, or produce the arguments we have found in them Such a knowledge as this is but knowledge by

hearsay, and the ostentation of it is at best but talking by rote, and very often upon weak and wrong principles. For all that is to be found in books is not built upon true foundations, nor always rightly deduced from the principles it is pretended to be built on. Such an examen as is requisite to discover that, every reader's mind is not forward to make; especially in those who have given themselves up to a party, and only hunt for what they can scrape together, that may favour and support the tenets of it. Such men wilfully exclude themselves from truth, and from all true benefit to be received by reading. Others of more indifferency often want attention and industry. The mind is backward in itself to be at the pains to trace every argument to its original, and to see upon what basis it stands, and how firmly; but yet it is this that gives so much the advantage to one man more than another in reading. The mind should by severe rules be tied down to this, at first, uneasy task; use and exercise will give it facility. So that those who are accustomed to it readily, as it were with one cast of the eye, take a view of the argument, and presently, in most cases, see where it bottoms. Those who have got this faculty, one may say, have got the true key of books, and the clue to lead them through the mizmaze of variety of opinions and authors to truth and certain-

ty. This young beginners should be entered in, and showed the use of, that they may profit by their reading. Those who are strangers to it will be apt to think it too great a clog in the way of men's studies, and they will suspect they shall make but small progress, if, in the books they read, they must stand to examine and unravel every argument, and follow it step by step up to its original.

I answer, this is a good objection, and ought to weigh with those whose reading is designed for much talk and little knowledge, and I have nothing to say to it. But I am here inquiring into the conduct of the understanding in its progress towards knowledge; and to those who aim at that, I may say, that he who fair and softly goes steadily forward in a course that points right, will sooner be at his journey's end, than he that runs after every one he meets, though he gallop all day full-speed.

To which let me add, that this way of thinking on, and profiting by, what we read, will be a clog and rub to any one only in the beginning: when custom and exercise have made it familiar, it will be despatched, on most occasions, without resting or interruption in the course of our reading. The motions and views of a mind exercised that way are wonderfully quick; and a man used to such sort of reflections see as much at

one glimpse as would require a long discourse to lay before another, and make out in an entire and gradual deduction. Besides, that when the first difficulties are over, the delight and sensible advantage it brings, mightily encourages and enlivens the mind in reading, which without this is very improperly called study.

§ 21. *Intermediate principles.*

As an help to this, I think it may be proposed, that, for the saving the long progression of the thoughts to remote and first principles in every case, the mind should provide its several stages; that is to say, intermediate principles, which it might have recourse to in the examining those positions that come in its way. These, though they are not self-evident principles, yet if they have been made out from them by a wary and unquestionable deduction, may be depended on as certain and infallible truths, and serve as unquestionable truths to prove other points depending on them by a nearer and shorter view than remote and general maxims. These may serve as land-marks to show what lies in the direct way of truth, or is quite besides it. And thus mathematicians do, who do not in every new problem run it back to the first axioms, through all the whole train of intermediate

propositions. Certain theorems, that they have settled to themselves upon sure demonstration, serve to resolve to them multitudes of propositions which depend on them, and are as firmly made out from thence, as if the mind went afresh over every link of the whole chain that ties them to first self-evident principles. Only in other sciences great care is to be taken that they establish those intermediate principles with as much caution, exactness, and indifferency, as mathematicians use in the settling any of their great theorems. When this is not done, but men take up the principles in this or that science upon credit, inclination, interest, &c. in haste, without due examination, and most unquestionable proof, they lay a trap for themselves, and as much as in them lies captivate their understandings to mistake, falsehood, and error.

§ 22. *Partiality.*

As there is a partiality to opinions, which, as we have already observed, is apt to mislead the understanding; so there is often a partiality to studies, which is prejudicial also to knowledge and improvement. Those sciences, which men are particularly versed in, they are apt to value and extol, as if that part of knowledge, which every one has acquainted himself with, were that alone which was worth

the having, and all the rest were idle, and empty amusements, comparatively of no use or importance. This is the effect of ignorance and not knowledge, the being vainly puffed up with a flatulency, arising from a weak and narrow comprehension. It is not amiss that every one should relish the science that he has made his peculiar study: a view of its beauties, and a sense of its usefulness, carries a man on with the more delight and warmth in the pursuit and improvement of it. But the contempt of all other knowledge, as if it were nothing in comparison of law or physic, of astronomy or chemistry, or perhaps some yet meaner part of knowledge, wherein I have got some smattering, or am somewhat advanced, is not only the mark of a vain or little mind; but does this prejudice in the conduct of the understanding, that it coops it up within narrow bounds, and hinders it from looking abroad into other provinces of the intellectual world, more beautiful possibly, and more fruitful than that which it had till then laboured in; wherein it might find, besides new knowledge, ways or hints whereby it might be enabled the better to cultivate its own.

§ 23. *Theology.*

There is indeed one science (as they are now distinguished) incomparably above all the rest,

where it is not by corruption narrowed into a trade of faction, for mean or ill ends, and secular interests; I mean theology, which, containing the knowledge of God and his creatures, our duty to him and our fellow-creatures and a view of our present and future state, is the comprehension of all other knowledge directed to its true end; i. e. the honour and veneration of the Creator, and the happiness of mankind. This is that noble study which is every man's duty, and every one that can be called a rational creature is capable of. The works of nature, and the words of revelation, display it to mankind in characters so large and visible, that those who are not quite blind may in them read, and see the first principles and most necessary parts of it; and from thence, as they have time and industry, may be enabled to go on to the more abstruse parts of it, and penetrate into those infinite depths filled with the treasures of wisdom and knowledge. This is that science which would truly enlarge men's minds, were it studied, or permitted to be studied every where, with that freedom, love of truth and charity which it teaches, and were not made, contrary to its nature, the occasion of strife, faction, malignity, and narrow impositions. I shall say no more here of this, but that it is undoubtedly a wrong use of my understanding, to make it the rule and measure

of another man's; a use which it is neither fit for, nor capable of.

§ 24. *Partiality.*

This partiality, where it is not permitted an authority to render all other studies insignificant or contemptible, is often indulged so far as to be relied upon, and made use of in other parts of knowledge, to which it does not at all belong, and wherewith it has no manner of affinity. Some men have so used their heads to mathematical figures, that, giving a preference to the methods of that science, they introduce lines and diagrams into their study of divinity, or politic inquiries, as if nothing could be known without them; and others, accustomed to retired speculations, run natural philosophy into metaphysical notions, and the abstract generalities of logic; and how often may one meet with religion and morality treated of in the terms of the laboratory, and thought to be improved by the methods and notions of chemistry? But he, that will take care of the conduct of his understanding to direct it right to the knowledge of things, must avoid those undue mixtures, and not by a fondness for what he has found useful and necessary in one, transfer it to another science, where it serves only to perplex and confound the understanding. It is a certain

truth, that *res nolunt male administrari ;* it is no less certain *res nolunt male intelligi.* Things themselves are to be considered as they are in themselves, and then they will show us in what way they are to be understood. For to have right conceptions about them, we must bring our understandings to the inflexible natures, and unalterable relations of things, and not endeavour to bring things to any preconceived notions of our own.

There is another partiality very commonly observable in men of study, no less prejudicial nor ridiculous than the former ; and that is a fantastical and wild-attributing all knowledge to the ancients alone, or to the moderns. This raving upon antiquity in matter of poetry, Horace has wittily described and exposed in one of his satires. The same sort of madness may be found in reference to all the other sciences. Some will not admit an opinion not authorised by men of old, who were then all giants in knowledge. Nothing is to be put into the treasury of truth or knowledge, which has not the stamp of Greece or Rome upon it ; and, since their days, will scarce allow that men have been able to see, think, or write. Others, with a like extravagancy, contemn all that the ancients have left us, and being taken with the modern inventions and discoveries, lay by all that went before, as if whatever is called old must have the decay of

time upon it, and truth too were liable to mould and rottenness. Men, I think, have been much the same for natural endowments in all times. Fashion, discipline, and education, have put eminent differences in the ages of several countries, and made one generation much differ from another in arts and sciences: but truth is always the same; time alters it not, nor is it the better or worse for being of ancient or modern tradition. Many were eminent in former ages of the world for their discovery and delivery of it; but though the knowledge they have left us be worth our study, yet they exhausted not all its treasure; they left a great deal for the industry and sagacity of after-ages, and so shall we. That was once new to them which any one now receives with veneration for its antiquity, nor was it the worse for appearing as a novelty; and that which is now embraced for its newness will to posterity be old, but not thereby be less true or less genuine. There is no occasion, on this account, to oppose the ancients and the moderns to one another, or to be squeamish on either side. He that wisely conducts his mind in the pursuit of knowledge will gather what lights, and get what helps he can, from either of them, from whom they are best to be had, without adoring the errors, or rejecting the truths, which he may find mingled in them.

Another partiality may be observed, in some to vulgar, in others to heterodox tenets: some are apt to conclude that what is the common opinion cannot but be true; so many men's eyes they think cannot but see right; so many men's understandings of all sorts cannot be deceived; and, therefore, will not venture to look beyond the received notions of the place and age, nor have so presumptuous a thought as to be wiser than their neighbours. They are content to go with the crowd, and so go easily, which they think is going right, or at least serves them as well. But, however *vox populi vox Dei* has prevailed as a maxim, yet I do not remember where ever God delivered his oracles by the multitude, or nature truths by the herd. On the other side, some fly all common opinions as either false or frivolous. The title of many-headed beast is a sufficient reason to them to conclude that no truths of weight or consequence can be lodged there. Vulgar opinions are suited to vulgar capacities, and adapted to the ends of those that govern. He that will know the truth of things must leave the common and beaten track, which none but weak and servile minds are satisfied to trudge along continually in. Such nice palates relish nothing but strange notions quite out of the way: whatever is commonly received, has the mark of the beast on it; and they think it a lessen-

ing to them to hearken to it, or receive it; their mind runs only after paradoxes; these they seek, these they embrace, these alone they vent; and so, as they think, distinguish themselves from the vulgar. But common or uncommon are not the marks to distinguish truth or falsehood, and therefore should not be any bias to us in our inquiries. We should not judge of things by men's opinions, but of opinions by things. The multitude reason but ill, and therefore may be well suspected, and cannot be relied on, nor should be followed as a sure guide; but philosophers, who have quitted the orthodoxy of the community, and the popular doctrines of their countries, have fallen into as extravagant and as absurd opinions as ever common reception countenanced. It would be madness to refuse to breathe the common air, or quench one's thirst with water, because the rabble use them to these purposes: and if there are conveniences of life which common use reaches not, it is not reason to reject them because they are not grown into the ordinary fashion of the country, and every villager doth not know them.

Truth, whether in or out of fashion, is the measure of knowledge, and the business of the understanding; whatsoever is besides that, however authorized by consent, or re-

commended by rarity, is nothing but ignorance, or something worse.

Another sort of partiality there is, whereby men impose upon themselves, and by it make their reading little useful to themselves: I mean the making use of the opinions of writers, and laying stress upon their authorities, wherever they find them to favour their own opinions.

There is nothing almost has done more harm to men dedicated to letters than giving the name of study to reading, and making a man of great reading to be the same with a man of great knowledge, or at least to be a title of honour. All that can be recorded in writing are only facts or reasonings. Facts are of three sorts;

1. Merely of natural agents, observable in the ordinary operations of bodies one upon another, whether in the visible course of things left to themselves, or in experiments made by men, applying agents and patients to one another, after a peculiar and artificial manner.

2. Of voluntary agents, more especially the actions of men in society, which makes civil and moral history.

3. Of opinions.

In these three consists, as it seems to me, that which commonly has the name of learning; to which perhaps some may add a dis-

tinct head of critical writings, which indeed at bottom is nothing but matter of fact ; and resolves itself into this, that such a man, or set of men, used such a word, or phrase, in such a sense *i. e.* that they made such sounds the marks of such ideas.

Under reasonings I comprehend all the discoveries of general truths made by human reason, whether found by intuition, demonstration or probable deductions. And this is that which is, if not alone knowledge, (because the truth or probability of particular propositions may be known too) yet is, as may be supposed, most properly, the business of those who pretend to improve their understandings, and make themselves knowing by reading.

Books and reading are looked upon to be the great helps of the understanding, and instruments of knowledge, as it must be allowed that they are ; and yet I beg leave to question whether these do not prove a hinderance to many, and keep several bookish men from attaining to solid and true knowledge. This, I think, I may be permitted to say, that there is no part wherein the understanding needs a more careful and wary conduct than in the use of books ; without which they will prove rather innocent amusements than profitable employments of our time, and bring but small additions to our knowledge.

There is not seldom to be found, even among those who aim at knowledge, who with an unwearied industry employ their whole time in books, who scarce allow themselves time to eat or sleep, but read, and read, and read on, yet make no great advances in real knowledge, though there be no defect in their intellectual faculties, to which their little progress can be imputed. The mistake here is, that it is usually supposed that by reading, the author's knowledge is transfused into the readers's understanding; and so it is, but not by bare reading, but by reading and understanding what he writ. Whereby I mean, not barely comprehending what is affirmed or denied in each proposition (though that great readers do not always think themselves concerned precisely to do,) but to see and follow the train of reasonings, observe the strength and clearness of their connexion, and examine upon what they bottom. Without this a man may read the discourses of a very rational author, writ in a language, and in propositions, that he very well understands, and yet acquire not one jot of his knowledge; which consisting only in the perceived, certain, or probable connexion of the ideas made use of in his reasonings, the reader's knowledge is no farther increased than he perceives that; so much as he sees of this connexion, so much

he knows of the truth or probability of that author's opinions.

All that he relies on without this perception, he takes upon trust upon the author's credit, without any knowledge of it at all. This makes me not at all wonder to see some men so abound in citations, and build so much upon authorities, it being the sole foundation on which they bottom most of their own tenets; so that, in effect, they have but a second-hand, or implicit knowledge, i. e. are in the right if such an one, from whom they borrowed it, were in the right in that opinion which they took from him; which indeed is no knowledge at all. Writers of this or former ages may be good witnesses of matters of fact which they deliver, which we may do well to take upon their authority; but their credit can go no farther than this, it cannot at all affect the truth and falsehood of opinions, which have no other sort of trial but reason and proof, which they themselves made use of to make themselves knowing, and so must others too that will partake in their knowledge. Indeed it is an advantage that they have been at the pains to find out the proofs, and lay them in that order that may show the truth or probability of their conclusions; and for this we owe them great acknowledgements for saving us the pains in searching those proofs which they have collected for us, and which possi-

bly, after all our pains, we might not have found, nor been able to have set them in so good a light as that which they left them us in.—Upon this account we are mightily beholden to judicious writers of all ages, for those discoveries and discourses they have left behind them for our instruction, if we know how to make a right use of them ; which is not to run them over in a hasty perusal, and perhaps lodge their opinions, or some remarkable passages in our memories ; but to enter into their reasonings, examine their proofs, and then judge of the truth or falsehood, probability or improbability of what they advance ; not by any opinion we have entertained of the author, but by the evidence he produces, and the conviction he affords us, drawn from things themselves. Knowing is seeing, and if it be so, it is madness to persuade ourselves that we do so by another man's eyes, let him use ever so many words to tell us, that what he asserts is very visible. Till we ourselves see it with our own eyes, and perceive it by our own understandings, we are as much in the dark, and as void of knowledge as before, let us believe any learned author as much as we will.

Euclid and Archimedes are allowed to be knowing, and to have demonstrated what they say ; and yet whoever shall read over their writings without perceiving the connexion of their proofs, and seeing what they show, though

he may understand all their words, yet he is not the more knowing: he may believe indeed, but does not know what they say, and so is not advanced one jot in mathematical knowledge by all his reading of those approved mathematicians.

§ 25. *Haste.*

THE eagerness and strong bent of the mind after knowledge, if not warily regulated, is often an hindrance to it. It still presses into farther discoveries and new objects, and catches at the variety of knowledge, and therefore often stays not long enough on what is before it, to look into it as it should, for haste to pursue what is yet out of sight. He that rides post through a country, may be able, from the transient view, to tell how in general the parts lie, and may be able to give some loose description of here a mountain, and there a plain, here a morass, and there a river; woodland in one part, and savannahs in another. Such superficial ideas and observations as these he may collect in galloping over it: but the more useful observations of the soil, plants, animals, and inhabitants, with their several sorts and properties, must necessarily escape him; and it is seldom men ever discover the rich mines, without some digging.

Nature commonly lodges her treasures and jewels in rocky ground. If the matter be knotty, and the sense lies deep, the mind must stop and buckle to it, and stick upon it with labour and thought, and close contemplation, and not leave it till it has mastered the difficulty, and got possession of truth. But here care must be taken to avoid the other extreme: a man must not stick at every useless nicety, and expect mysteries of science in every trivial question or scruple that he may raise. He that will stand to pick up and examine every pebble that comes in his way, is as unlikely to return enriched and laden with jewels, as the other that travelled full speed. Truths are not the better nor the worse for their obviousness or difficulty, but their value is to be measured by their usefulness and tendency. Insignificant observations should not take up any of our minutes, and those that enlarge our view, and give light towards farther and useful discoveries, should not be neglected, though they stop our course, and spend some of our time in a fixed attention.

There is another haste that does often, and will mislead the mind if it be left to itself and its own conduct. The understanding is naturally forward, not only to learn its knowledge by variety (which makes it skip over one to get speedily to another part of knowledge) but also eager to enlarge its views, by running

too fast into general observations and conclusions, without a due examination of particulars enough whereon to found those general axioms. This seems to enlarge their stock, but it is of fancies, not realities; such theories built upon narrow foundations stand but weakly, and, if they fall not of themselves, are at least very hardly to be supported against the assaults of opposition.—And thus men being too hasty to erect to themselves general notions and ill-grounded theories, find themselves deceived in their stock of knowledge, when they come to examine their hastily assumed maxims themselves, or to have them attacked by others. General observations drawn from particulars, are the jewels of knowledge, comprehending great store in a little room; but they are therefore to be made with the greater care and caution, lest if we take counterfeit for true, our loss and shame be the greater when our stock comes to a severe scrutiny. One or two particulars may suggest hints of inquiry, and they do well to take those hints; but if they turn them into conclusions, and make them presently general rules, they are forward indeed, but it is only to impose on themselves by propositions assumed for truths without sufficient warrant. To make such observations, is, as has been already remarked, to make the head a magazine of materials, which can hardly be called

knowledge, or at least it is but like a collection of lumber not reduced to use or order; and he that makes every thing an observation, has the same useless plenty, and much more falsehood mixed with it. The extremes on both sides are to be avoided, and he will be able to give the best account of his studies who keeps his understanding in the right mean between them.

§ 26. *Anticipation.*

WHETHER it be a love of that which brings the first light and information to their minds, and want of vigour and industry to inquire; or else that men content themselves with any appearance of knowledge, right or wrong; which, when they have once got, they will hold fast: this is visible, that many men give themselves up to the first anticipations of their minds, and are very tenacious of the opinions that first possess them; they are often as fond of their first conceptions as of their first born, and will by no means recede from the judgment they have once made, or any conjecture or conceit which they have once entertained. This is a fault in the conduct of the understanding, since this firmness, or rather stiffness of the mind, is not from an adherence to truth, but a submission to prejudice. It is an unreasonable homage paid to prepossession, whereby we

show a reverence not to (what we pretend to seek) truth, but what by hap-hazard we chance to light on, be it what it will. This is visibly a preposterous use of our faculties, and is a downright prostituting of the mind to resign it thus, and put it under the power of the first comer. This can never be allowed, or ought to be followed as a right way to knowledge, till the understanding (whose business it is to conform itself to what it finds in the objects without) can by its own opinionatry change that, and make the unalterable nature of things comply with its own hasty determinations, which will never be. Whatever we fancy, things keep their course ; and the habitudes, correspondences, and relations, keep the same to one another.

§ 27. *Resignation.*

Contrary to these, but by a like dangerous excess on the other side, are those who always resign their judgment to the last man they heard or read. Truth never sinks into these men's minds, nor gives any tincture to them, but cameleon-like, they take the colour of what is laid before them, and as soon lose and resign it to the next that happens to come in their way. The order wherein opinions are proposed or received by us, is no rule of their rectitude, nor ought to be a cause of their pre-

ference. First or last in this case, is the effect of chance, and not the measure of truth or falsehood. This every one must confess, and therefore should, in the pursuit of truth, keep his mind free from the influence of any such accidents. A man may as reasonably draw cuts for his tenets, regulate his persuasion the cast of a die, as take it up for its novelty, or retain it because it had his first assent, and he was never of another mind. Well-weighed reasons are to determine the judgment; those the mind should be always ready to hearken and submit to, and by their testimony and suffrage, entertain or reject any tenet indifferently, whether it be a perfect stranger, or an old acquaintance.

§ 28. *Practice.*

Though the faculties of the mind are improved by exercise, yet they must not be put to a stress beyond their strength. *Quid valeant humeri, quid ferre recusent*, must be made the measure of every one's understanding who has a desire not only to perform well, but to keep up the vigour of his faculties, and not to baulk his understanding by what is too hard for it. The mind, by being engaged in a task beyond its strength, like the body, strained by lifting at a weight too heavy, has often its force broken, and thereby gets an unaptness or an

aversion to any vigorous attempt ever after. A sinew cracked seldom recovers its former strength, or at least the tenderness of the sprain remains a good while after, and the memory of it longer, and leaves a lasting caution in the man not to put the part quickly again to any robust employment. So it fares in the mind once jaded by an attempt above its power; it either is disabled for the future, or else checks at any vigorous undertaking ever after, at least is very hardly brought to exert its force again on any subject that requires thought and meditation. The understanding should be brought to the difficult and knotty parts of knowledge, that try the strength of thought, and a full bent of the mind by insensible degrees, and in such a gradual proceeding nothing is too hard for it. Nor let it be objected, that such a slow progress will never reach the extent of some sciences.—It is not to be imagined how far constancy will carry a man; however, it is better walking slowly in a rugged way, than to break a leg and be a cripple. He that begins with the calf may carry the ox; but he that will at first go to take up an ox, may so disable himself, as not be able to lift up a calf after that. When the mind, by insensible degrees, has brought itself to attention and close thinking, it will be able to cope with difficulties, and master them without any prejudice to itself,

and then it may go on roundly. Every abstruse problem, every intricate question, will not baffle, discourage, or break it. But though putting the mind unprepared upon an unusual stress, that may discourage or damp it for the future, ought to be avoided; yet this must not run it, by an over-great shyness of difficulties, into a lazy sauntering about ordinary and obvious things, that demand no thought or application. This debases and enervates the understanding, makes it weak and unfit for labour. This is a sort of hovering about the surface of things, without any insight into them or penetration; and when the mind has been once habituated to this laxy recumbency and satisfaction on the obvious surface of things, it is in danger to rest satisfied there, and go no deeper, since it cannot do it without pains and digging. He that has for some time accustomed himself to take up with what easily offers itself at first view, has reason to fear he shall never reconcile himself to the fatigue of turning and tumbling of things in his mind, to discover their more retired and more valuable secrets.

It is not strange that methods of learning, which scholars have been accustomed to in their beginning and entrance upon the sciences, should influence them all their lives, and be settled in their minds by an over-ruling reverence, especially if they be such as

universal use has established. Learners must at first be believers, and their master's rules having been once made axioms to them, it is no wonder they should keep that dignity, and by the authority they have once got, mislead those who think it sufficient to excuse them, if they go out of their way in a well-beaten track.

§ 29. *Words.*

I HAVE copiously enough spoken of the abuse of words in another place, and therefore shall upon this reflection, that the sciences are full of them, warn those that would conduct their understandings right not to take any term, howsoever authorized by the language of the schools, to stand for any thing till they have an idea of it. A word may be of frequent use, and great credit, with several authors, and be by them made use of as if it stood for some real being; but yet, if he that reads cannot frame any distinct idea of that being, it is certainly to him a mere empty sound without a meaning; and he learns no more by all that is said of it, or attributed to it, than if it were affirmed only of that bare empty sound. They who would advance in knowledge, and not deceive and swell themselves with a little articulated air, should lay down this as a fundamental rule, not to take

words for things, nor suppose that names in books signify real entities in nature, till they can frame clear and distinct ideas of those entities. It will not perhaps be allowed, if I should set down "substantial forms" and "intentional species," as such that may justly be suspected to be of this kind of insignificant terms: but this I am sure, to one that can form no determined ideas of what they stand for, they signify nothing at all; and all that he thinks he knows about them is to him so much knowledge about nothing, and amounts at most but to a learned ignorance. It is not without all reason supposed that there are many such empty terms to be found in some learned writers, to which they had recourse to etch out their systems, where their understandings could not furnish them with conceptions from things. But yet I believe the supposing of some realities in nature, answering those and the like words, have much perplexed some, and quite misled others in the study of nature. That which in any discourse signifies, "I know not what," should be considered "I know not when." Where men have any conceptions, they can, if they are ever so abstruse or abstracted, explain them, and the terms they use for them. For our conceptions being nothing but ideas, which are all made up of simple ones, if they cannot give us the ideas their words stand for, it

is plain they have none. To what purpose can it be to hunt after his conceptions who has none, or none distinct? He that knew not what he himself meant by a learned term cannot make us know any thing by his use of it, let us beat our heads about it ever so long. Whether we are able to comprehend all the operations of nature, and the manners of them, it matters not to inquire; but this is certain, that we can comprehend no more of them than we can distinctly conceive; and therefore to obtrude terms where we have no distinct conceptions, as if they did contain or rather conceal something, is but an artifice of learned vanity to cover a defect in a hypothesis or our understandings. Words are not made to conceal, but to declare and show something; where they are by those, who pretend to instruct, otherwise used, they conceal indeed something; but that which they conceal is nothing but the ignorance, error, or sophistry of the talker; for there is, in truth, nothing else under them.

§ 30. *Wandering.*

That there is a constant succession and flux of ideas in our minds, I have observed in the former part of this Essay; and every one may take notice of it in himself. This, I suppose, may deserve some part of our care

in the conduct of our understandings; and I think it may be of great advantage, if we can by use get that power over our minds, as to be able to direct that train of ideas, that so, since there will new ones perpetually come into our thoughts by a constant succession, we may be able by choice so to direct them, that none may come in view but such as are pertinent to our present inquiry, and in such order as may be most useful to the discovery we are upon; or at least, if some foreign and unsought ideas will offer themselves, that yet we might be able to reject them, and keep them from taking off our minds from its present pursuit, and hinder them from running away with our thoughts quite from the subject in hand. This is not, I suspect, so easy to be done as perhaps may be imagined; and yet, for aught I know, this may be, if not the chief, yet one of the great differences that carry some men in their reasoning so far beyond others, where they seem to be naturally of equal parts. A proper and effectual remedy for this wandering of thoughts I would be glad to find. He that shall propose such an one, would do great service to the studious and contemplative part of mankind, and perhaps help unthinking men to become thinking. I must acknowledge that hitherto I have discovered no other way to keep our thoughts close to their business, but the endeavouring as much as we

can, and by frequent attention and application, getting the habit of attention and application. He that will observe children will find, that even when they endeavour their utmost, they cannot keep their minds from straggling. The way to cure it, I am satisfied, is not angry chiding or beating, for that presently fills their heads with all the ideas that fear, dread, or confusion can offer to them. To bring back gently their wandering thoughts, by leading them into the path, and going before them in the train they should pursue, without any rebuke, or so much as taking notice (where it can be avoided) of their roving, I suppose would sooner reconcile and inure them to attention than all those rougher methods which more distract their thought, and, hindering the application they would promote, introduce a contrary habit.

§ 31. *Distinction.*

Distinction and division are (if I mistake not the import of the words) very different things; the one being the perception of a difference that nature has placed in things; the other, our making a division where there is yet none; at least, if I may be permitted to consider them in this sense, I think I may say of them that one of them is the most necessary and conducive to true knowledge

that can be ; the other, when too much made use of, serves only to puzzle and confound the understanding. To observe every the least difference that is in things argues a quick and clear sight; and this keeps the understanding steady, and right in its way to knowledge. But though it be useful to discern every variety that is to be found in nature, yet it is not convenient to consider every difference that is in things, and divide them into distinct classes under every such difference. This will run us, if followed, into particulars (for every individual has something that differences it from another,) and we shall be able to establish no general truths, or else at least shall be apt to perplex the mind about them. The collection of several things into several classes, gives the mind more general and larger views ; but we must take care to unite them only in that, and so far as they do agree ; for so far they may be united under the consideration : for entity itself, that comprehends all things, as general as it is, may afford us clear and rational conceptions. If we would weigh and keep in our minds what it is we are considering, that would best instruct us when we should, or should not branch into farther distinctions, which are to be taken only from a due contemplation of things ; to which there is nothing more oppo-

site than the art of verbal distinctions, made at pleasure in learned and arbitrarily invented terms, to be applied at a venture, without comprehending or conveying any distinct notions, and so altogether fitted to artificial talk, or empty noise in dispute, without any clearing of difficulties, or advance in knowledge. Whatsoever subject we examine and would get knowledge in, we should, I think, make as general and as large as it will bear; nor can there be any danger of this, if the idea of it be settled and determined: for if that be so, we shall easily distinguish it from any other idea, though comprehended under the same name. For it is to fence against the entanglements of equivocal words, and the great art of sophistry which lies in them, that distinctions have been multiplied, and their use thought so necessary. But had every distinct abstract idea a distinct known name, there would be little need of these multiplied scholastic distinctions, though there would be nevertheless as much need still of the mind's observing the differences that are in things, and discriminating them thereby one from another. It is not, therefore, the right way to knowledge, to hunt after, and fill the head with abundance of artificial and scholastic distinctions, wherewith learned men's writings are often filled; we sometimes find what they treat of so divided and subdivided, that the

mind of the most attentive reader loses the sight of it, as it is more than probable the writer himself did ; for in things crumbled into dust, it is in vain to affect or pretend order, or expect clearness. To avoid confusion by too few or too many divisions, is a great skill in thinking as well as writing, which is but the copying our thoughts ; but what are the boundaries of the mean between the two vicious excesses on both hands, I think is hard to set down in words : clear and distinct ideas is all that I yet know able to regulate it. But as to verbal distinctions received and applied to common terms, i. e. equivocal words ; they are more properly, I think, the business of criticisms and dictionaries than of real knowledge and philosophy, since they, for the most part, explain the meaning of words, and give us their several significations. The dexterous management of terms, and being able to *fend* and *prove* with them, I know has, and does pass in the world for a great part of learning ; but it is learning distinct from knowledge ; for knowledge consists only in perceiving the habitudes and relations of ideas one to another, which is done without words ; the intervention of a sound helps nothing to it. And hence we see that there is least use of distinctions where there is most knowledge ; I mean in mathematics, where men have determined ideas without known names to them ; and so

there being no room for equivocations, there is no need of distinctions. In arguing, the opponent uses as comprehensive and equivocal terms as he can to involve his adversary in the doubtfulness of his expressions : this is expected, and therefore the answer on his side makes it his play to distinguish as much as he can, and thinks he can never do it too much ; nor can he indeed in that way wherein victory may be had without truth and without knowledge. This seems to me to be the art of disputing. Use your words as captiously as you can in your arguing on one side, and apply distinctions as much as you can on the other side to every term, to nonplus your opponent ; so that in this sort of scholarship, there being no bounds set to distinguishing, some men have thought all acuteness to have lain in it : and therefore in all they have read or thought on, their great business has been to amuse themselves with distinctions, and multiply to themselves divisions, at least, more than the nature of the thing required. There seems to me, as I said, to be no other rule for this, but a due and right consideration of things as they are in themselves. He that has settled in his mind determined ideas, with names affixed to them, will be able both to discern their differences one from another, which is really distinguishing ; and, where the penury of words affords not terms answering every

distinct idea, will be able to apply proper distinguishing terms to the comprehensive and equivocal names he is forced to make use of. This is all the need I know of distinguishing terms ; and in such verbal distinctions, each term of the distinction, joined to that whose signification it distinguishes, is but a distinct name for a distinct idea. Where they are so, and men have clear and distinct conceptions that answer their verbal distinctions, they are right, and are pertinent as far as they serve to clear any thing in the subject under consideration. And this is that which seems to me the proper and only measure of distinctions and divisions ; which he that will conduct his understanding right, must not look for in the acuteness of invention, nor the authority of writers, but will find only in the consideration of things themselves, whether he is led into it by his own meditations, or the information of books.

An aptness to jumble things together, wherein can be found any likeness, is a fault in the understanding on the other side, which will not fail to mislead it, and by thus lumping of things, hinder the mind from distinct and accurate conceptions of them.

§ 32. *Similes.*

To which let me here add another near of kin to this, at least in name, and that is letting the mind upon the suggestion of any new notion, run immediately after similes to make it the clearer to itself; which, though it may be a good way, and useful in the explaining our thoughts to others; yet it is by no means a right method to settle true notions of any thing in ourselves, because similes always fail in some part, and come short of that exactness which our conceptions should have to things, if we would think aright. This indeed makes men plausible talkers; for those are always most acceptable in discourse who have the way to let their thoughts into other men's minds with the greatest ease and facility; whether those thoughts are well formed and correspond with things, matters not; few men care to be instructed but at an easy rate. They, who in their discourse strike the fancy, and take the hearer's conceptions along with them as fast as their words flow, are the applauded talkers, and go for the only men of clear thoughts. Nothing contributes so much to this as similes, whereby men think they themselves understand better, because they are the better understood. But it is one thing to think right, and another thing to know the

right way to lay our thoughts before others with advantage and clearness, be they right or wrong. Well chosen similes, metaphors, and allegories, with method and order, do this the best of any thing, because being taken from objects already known, and familiar to the understanding, they are conceived as fast as spoken; and the correspondence being concluded, the thing they are brought to explain and elucidate is thought to be understood too. Thus fancy passes for knowledge, and what is prettily said is mistaken for solid. I say not this to decry metaphor, or with design to take away that ornament of speech; my business here is not with rhetoricians and orators, but with philosophers and lovers of truth; to whom I would beg leave to give this one rule whereby to try whether, in the application of their thoughts to any thing for the improvement of their knowledge, they do in truth comprehend the matter before them really such as it is in itself. The way to discover this is to observe, whether in the laying it before themselves or others, they make use only of borrowed representations and ideas foreign to the things which are applied to it by way of accommodation, as bearing some proportion or imagined likeness to the subject under consideration. Figured and metaphorical expressions do well to illustrate more abstruse and unfamiliar ideas which

the mind is not yet thoroughly accustomed to: but then they must be made use of to illustrate ideas that we already have, not to paint to us those which we yet have not. Such borrowed and allusive ideas may follow real and solid truth, to set it off when found, but must by no means be set in its place, and taken for it. If all our search has yet reached no farther than simile and metaphor, we may assure ourselves we rather fancy than know, and are not yet penetrated into the inside and reality of the thing, be it what it will, but content ourselves with what our imaginations, not things themselves, furnish us with.

§ 33. *Assent.*

In the whole conduct of the understanding, there is nothing of more moment than to know when and where, and how far to give assent, and possibly there is nothing harder. It is very easily said and nobody questions it, that giving and with-holding our assent, and the degrees of it, should be regulated by the evidence which things carry with them; and yet we see men are not the better for this rule; some firmly embrace doctrines upon slight grounds, some upon no grounds, and some contrary to appearance: some admit of certainty, and are not to be moved in what they hold: others waver in every thing, and there want not

those that reject all as uncertain. What then shall a novice, an inquirer, a stranger do in the case? I answer, use his eyes. There is a correspondence in things, and agreement and disagreement in ideas, discernible in very different degrees, and there are eyes in men to see them if they please, only their eyes may be dimmed or dazzled, and the discerning sight in them impaired or lost. Interest and passion dazzles; the custom of arguing on any side, even against our persuasions, dims the understanding, and makes it by degrees lose the faculty of discerning clearly between truth and falsehood, and so of adhering to the right side.—It is not safe to play with error, and dress it up to ourselves or others in the shape of truth. The mind by degrees loses its natural relish of real solid truth, is reconciled insensibly to any thing that can be dressed up into any faint appearance of it; and if the fancy be allowed the place of judgment at first in sport, it afterwards comes by use to usurp it, and what is recommended by this flatterer (that studies but to please) is received for good. There are so manyways of fallacy, such arts of giving colours, appearances, and resemblances by this court-dresser, the fancy, that he who is not wary to admit nothing but truth itself, very careful not to make his mind subservient to any thing else, cannot but be caught. He that has a mind to believe, has half assent-

ed already; and he that, by often arguing against his own sense, imposes falsehood on others, is not far from believing himself. This takes away the great distance there is betwixt truth and falsehood; it brings them almost together, and makes it no great odds, in things that approach so near, which you take; and when things are brought to that pass, passion or interest, &c. easily and without being perceived, determine which shall be the right.

§ 34. *Indifferency.*

I have said above, that we should keep a perfect indifferency for all opinions, not wish any of them true, or try to make them appear so; but being indifferent, receive and embrace them according as evidence, and that alone gives the attestation of truth. They that do thus, *i. e.* keep their minds indifferent to opinions, to be determined only by evidence, will always find the understanding has perception enough to distinguish between evidence and no evidence, betwixt plain and doubtful; and if they neither give nor refuse their assent but by that measure, they will be safe in the opinions they have. Which being perhaps but few, this caution will have also this good in it, that it will put them upon considering, and teach them the necessity of examining more than they do; without which

the mind is but a receptacle of inconsistencies, not the store-house of truths. They that do not keep up this indifferency in themselves for all but truth, not supposed, but evidenced in themselves, put coloured spectacles before their eyes, and look on things through false glasses, and then think themselves excused in following the false appearances which they themselves put upon them. I do not expect that by this way the assent should in every one be proportioned to the grounds and clearness wherewith every truth is capable to be made out; or that men should be perfectly kept from error: that is more than human nature can by any means be advanced to; I aim at no such unattainable privilege; I am only speaking of what they should do, who would deal fairly with their own minds, and make a right use of their faculties in the pursuit of truth; we fail them a great deal more than they fail us. It is mismanagement more than want of abilities that men have reason to complain of, and which they actually do complain of in those that differ from them. He that by an indifferency for all but truth suffers not his assent to go faster than his evidence, nor beyond it, will learn to examine, and examine fairly, instead of presuming, and nobody will be at a loss, or in danger for want of embracing those truths which are necessary in his station and circumstances. In any

other way but this, all the world are born to orthodoxy; they imbibe at first the allowed opinions of their country and party, and so never questioning their truth, not one of a hundred ever examines. They are applauded for presuming they are in the right. He that considers, is a foe to orthodoxy, because possibly he may deviate from some of the received doctrines there. And thus men, without any industry or acquisition of their own, inherit local truths, (for it is not the same every where) and are inured to assent without evidence. This influences farther than is thought; for what one of a hundred of the zealous bigots in all parties ever examined the tenets he is so stiff in, or ever thought it his business or duty so to do? It is suspected of luke-warmness to suppose it necessary, and a tendency to apostacy to go about it. And if a man can bring his mind once to be positive and fierce for positions whose evidence he has never once examined, and that in matters of greatest concernment to him; what shall keep him from this short and easy way of being in the right in cases of less moment? Thus we are taught to clothe our minds as we do our bodies, after the fashion in vogue, and it is accounted fantasticalness, or something worse, not to do so. This custom (which who dares oppose) makes the short-sighted bigots, and the warier skeptics, as far as it prevails: and those that

break from it are in danger of heresy : for taking the whole world, how much of it doth truth and orthodoxy possess together ? Though it is by the last alone (which has the good luck to be every where) that error and heresy are judged of : for argument and evidence signify nothing in the case, and excuse nowhere, but are sure to be borne down in all societies by the infallible orthodoxy of the place. Whether this be the way to truth and right assent, let the opinions, that take place and prescribe in the several habitable parts of the earth, declare. I never saw any reason yet why truth might not be trusted on its own evidence : I am sure if that be not able to support it, there is no fence against error ; and then truth and falsehood are but names that stand for the same things. Evidence therefore is that by which alone every man is (and should be) taught to regulate his assent, who is then, and then only, in the right way, when he follows it.

Men deficient in knowledge are usually in one of these three states ; either wholly ignorant, or as doubting of some proposition they have either embraced formerly or at present are inclined to ; or lastly, they do with assurance hold and profess without ever having examined, and being convinced by well-grounded arguments.

The first of these are in the best state of

the three, by having their minds yet in their perfect freedom and indifferency; the likelier to pursue truth the better, having no bias yet clapped on to mislead them.

§ 35.

For ignorance, with an indifferency for truth, is nearer to it than opinion with ungrounded inclination, which is the great source of error; and they are more in danger to go out of the way who are marching under the conduct of a guide, that it is a hundred to one will mislead them, than he that has not yet taken a step, and is likelier to be prevailed on to inquire after the right way. The last of the three sorts are in the worst condition of all; for if a man can be persuaded and fully assured of any thing for a truth, without having examined, what is there that he may not embrace for truth? and if he has given himself up to believe a lie, what means is there left to recover one who can be assured without examining? To the other two this I crave leave to say, that as he that is ignorant is in the best state of the two, so he should pursue truth in a method suitable to that state; *i. e.* by inquiring directly into the nature of the thing itself, without minding the opinions of others, or troubling himself with their questions or disputes about it; but to see what he himself can, sin-

cerely searching for truth, find out. He that proceeds on other principles in his inquiry into any sciences, though he be resolved to examine them and judge of them freely, does yet at least put himself on that side, and post himself in a party which he will not quit till he be beaten out; by which the mind is insensibly engaged to make what defence it can, and so is unawares biassed. I do not say but a man should embrace some opinion when he has examined, else he examines to no purpose; but the surest and safest way is to have no opinion at all till he has examined, and that without any the least regard to the opinions or systems of other men about it. For example, were it my business to understand physic, would not the safe and readier way be to consult nature herself, and inform myself in the history of diseases and their cures, than espousing the principles of the dogmatists, methodists, or chymists, to engage in all the disputes concerning either of those systems, and suppose it to be true, till I have tried what they can say to beat me out of it? Or supposing that Hippocrates, or any other book, infallibly contains the whole art of physic, would not the direct way be to study, read, and consider that book, weigh and compare the parts of it to find the truth, rather than espouse the doctrines of any party? who, though they acknowledge his authority, have

already interpreted and wiredrawn all his text to their own sense; the tincture whereof, when I have imbibed, I am more in danger to misunderstand his true meaning, than if I had come to him with a mind unprepossessed by doctors and commentators of my sect; whose reasonings, interpretation, and language, which I have been used to, will of course make all chime that way, and make another, and perhaps the genuine meaning of the author seem harsh, strained, and uncouth to me. For words having naturally none of their own, carry that signification to the hearer that he is used to put upon them, whatever be the sense of him that uses them. This, I think, is visibly so; and if it be, he that begins to have any doubt of any of his tenets, which he received without examination, ought, as much as he can, to put himself wholly into this state of ignorance in reference to that question; and throwing wholly by all his former notions, and the opinions of others, examine, with a perfect indifferency, the question in its source; without any inclination to either side, or any regard to his or others' unexamined opinions. This I own is no easy thing to do; but I am not enquiring the easy way to opinion, but the right way to truth; which they must follow who will deal fairly with their own understandings and their own souls.

§ 36. *Question.*

THE indifferency that I here propose will also enable them to state the question right, which they are in doubt about, without which they can never come to a fair and clear decision of it.

§ 37. *Perseverance.*

ANOTHER fruit from this indifferency, and the considering things in themselves abstract from our own opinions and other men's notions and discourses on them, will be, that each man will pursue his thoughts in that method which will be most agreeable to the nature of the thing, and to his apprehension of what it suggests to him; in which he ought to proceed with regularity and constancy, until he come to a well-grounded resolution wherein he may acquiesce. If it be objected that this will require every man to be a scholar, and quit all his other business, and betake himself wholly to study; I answer, I propose no more to any one than he has time for. Some men's state and condition requires no great extent of knowledge; the necessary provision for life swallows the greatest part of their time. But one man's want of leisure is no excuse for the ositancy and ignorance of those who have time to spare; and every one

has enough to get as much knowledge as is required and expected of him, and he that does not that, is in love with ignorance, and is accountable for it.

§ 38. *Presumption.*

THE variety of distempers in men's minds is as great as of those in their bodies; some are epidemic, few escape them; and every one too, if he would look into himself, would find some defect of his particular genius. There is scarce any one without some idiosyncrasy that he suffers by. This man presumes upon his parts, that they will not fail him at time of need; and so thinks it superfluous labour to make any provision beforehand. His understanding is to him like Fortunatus's purse, which is always to furnish him, without ever putting any thing into it before-hand; and so he sits still satisfied, without endeavouring to store his understanding with knowledge. It is the spontaneous product of the country, and what need of labour in tillage? Such men may spread their native riches before the ignorant; but they were best not come to stress and trial with the skilful. We are born ignorant of every thing. The superficies of things that surround them make impressions on the negligent, but nobody penetrates into the inside without labour, attention, and indus-

try. Stones and timber grow of themselves, but yet there is no uniform pile with symmetry and convenience to lodge in without toil and pains. God has made the intellectual world harmonious and beautiful without us; but it will never come into our heads all at once; we must bring it home peice-meal, and there set it up by our own industry, or else we shall have nothing but darkness and a chaos within, whatever order and light there be in things without us.

§ 39. *Despondency.*

On the other side, there are others that depress their own minds, despond at the first difficulty, and conclude that the getting an insight in any of the sciences, or making any progress in knowledge farther than serves their ordinary buisiness, is above their capacities. These sit still, because they think they have not legs to go as the others I last mentioned do, because they think they have wings to fly, and can soar on high when they please. To these latter one may for answer apply the proverb, "Use legs and have legs." Nobody knows what strength of parts he has till he has tried them. And of the understanding one may most truly say, that its force is greater generally than it thinks, till it is put to it. *Viresque acquirit eundo.*

And therefore the proper remedy here is but to set the mind to work, and apply the thoughts vigorously to the business; for it holds in the struggles of the mind as in those of war, "Dum putant se vincere vicere;" a persuasion that we shall overcome any difficulties that we meet with in the sciences, seldom fails to carry us through them. Nobody knows the strength of his mind, and the force of steady and regular application, till he has tried. This is certain, he that sets out upon weak legs will not only go farther, but grow stronger too, than one who, with a vigorous constitution and firm limbs, only sits still.

Something of kin to this men may observe in themselves, when the mind frights itself (as it often does) with any thing reflected on in gross, and transiently viewed confusedly, and at a distance. Things thus offered to the mind carry the show of nothing but difficulty in them, and are thought to be wrapt up in impenetrable obscurity. But the truth is, these are nothing but spectres that the understanding raises to itself to flatter its own laziness. It sees nothing distinctly in things remote, and in a huddle; and therefore concludes too faintly, that there is nothing more clear to be discovered in them. It is but to approach nearer, and that mist of our own raising that enveloped them will remove; and those that in that mist appeared hideous giants

not to be grappled with, will be found to be of the ordinary and natural size and shape. Things, that in a remote and confused view seem very obscure, must be approached by gentle and regular steps; and what is most visible, easy, and obvious in them first considered. Reduce them into their distinct parts; and then in their due order bring all that should be known concerning every one of those parts into plain and simple questions; and then what was thought obscure, perplexed, and too hard for our weak parts, will lay itself open to the understanding in a fair view, and let the mind into that which before it was awed with, and kept at a distance from, as wholly mysterious. I appeal to my reader's experience, whether this has never happened to him, especially when, busy on one thing, he has occasionally reflected on another. I ask him whether he has never thus been scared with a sudden opinion of mighty difficulties, which yet have vanished, when he has seriously and methodically applied himself to the consideration of this seeming terrible subject; and there has been no other matter of astonishment left, but that he amused himself with so discouraging a prospect, of his own raising, about a matter which in the handling was found to have nothing in it more strange nor intricate than several other things which he had long since and with ease mastered? This

experience would teach us how to deal with such bugbears another time, which should rather serve to excite our vigour than enervate our industry. The surest way for a learner in this, as in all other cases, is not to advance by jumps and large strides; let that which he sets himself to learn next be indeed the next; *i. e.* as nearly conjoined with what he knows already as is possible; let it be distinct but not remote from it: let it be new, and what he did not know before, that the understanding may advance; but let it be as little at once as may be, that its advances may be clear and sure. All the ground that it gets this way it will hold. This distinct gradual growth in knowledge is firm and sure; it carries its own light with it in every step of its progression, in an easy and orderly train; than which there is nothing of more use to the understanding. And though this perhaps may seem a very slow and lingering way to knowledge, yet I dare confidently affirm, that whoever will try it in himself, or any one he will teach, shall find the advances greater in this method than they would in the same space of time have been in any other he could have taken. The greatest part of true knowledge lies in a distinct perception of things in themselves distinct. And some men give more clear light and knowledge by the bare distinct stating of a

question, than others by talking of it in gross whole hours together. In this, they who so state a question do no more but separate and disentangle the parts of it one from another, and lay them, when so disentangled, in their due order. This often, without any more ado, resolves the doubt, and shews the mind where the truth lies. The agreement or disagreement of the ideas in question, when they are once separated and distinctly considered, is, in many cases, presently perceived, and thereby clear and lasting knowledge gained; whereas things in gross taken up together, and so lying together in confusion, can produce in the mind but a confused, which in effect is no knowledge; or at least, when it comes to be examined and made use of, will prove little better than none. I therefore take the liberty to repeat here again what I have said elsewhere, that in learning any thing as little should be proposed to the mind at once as is possible; and, that being understood and fully mastered, to proceed to the next adjoining part yet unknown, simple, unperplexed proposition belonging to the matter in hand, and tending to the clearing what is principally designed.

§ 40. *Analogy*

Analogy is of great use to the mind in many cases, especially in natural philosophy; and

that part of it chiefly which consists in happy and successful experiments. But here we must take care that we keep ourselves within that wherein the analogy consists. For example, the acid oil of vitriol is found to be good in such a case, therefore the spirit of nitre or vinegar may be used in the like case. If the good effect of it be owing wholly to the acidity of it, the trial may be justified ; but if there be something else besides the acidity in the oil of vitriol which produces the good we desire in the case, we mistake that for analogy, which is not, and suffer our understanding to be misguided by a wrong supposition of analogy where there is none.

§ 41. *Association.*

Though I have, in the second book of my Essay concerning Human Understanding, treated of the association of ideas ; yet having done it there historically, as giving a view of the understanding in this as well as its several other ways of operating, rather than designing there to inquire into the remedies that ought to be applied to it ; it will under this latter consideration, afford other matter of thought to those who have a mind to instruct themselves thoroughly in the right way of conducting their understandings ; and that the rather, because this, if I mistake not, is as

frequent a cause of mistake and error in us as perhaps any thing else that can be named, and is a disease of the mind as hard to be cured as any ; it being a very hard thing to convince any one that things are not so, and naturally so, as they constantly appear to him.

By this one easy and unheeded miscarriage of the understanding, sandy and loose foundations become infallible principles, and will not suffer themselves to be touched or questioned: such unnatural connexions become by custom as natural to the mind as sun and light, fire and warmth go together, and so seem to carry with them as natural an evidence as self-evident truths themselves. And where then shall one with hopes of success begin the cure ? Many men firmly embrace falsehood for truth, not only because they never thought otherwise, but also because, thus blinded as they have been from the beginning, they never could think otherwise, at least without a vigour of mind able to contest the empire of habit, and look into its own principles ; a freedom which few men have the notion of in themselves, and fewer are allowed the practice of by others ; it being the great art and business of the teachers and guides in most sects to suppress, as much as they can, this fundamental duty which every man owes himself, and is the first steady step towards right and truth in the whole train of his actions and opinions. This would give one

reason to suspect that such teachers are conscious to themselves of the falsehood or weakness of the tenets they profess, since they will not suffer the grounds whereon they are built to be examined : whereas those who seek truth only, and desire to own and propagate nothing else, freely expose their principles to the test, are pleased to have them examined, give men leave to reject them if they can ; and if there be any thing weak and unsound in them, are willing to have it detected, that they themselves as well as others, may not lay any stress upon any received proposition beyond what the evidence of its truths will warrant and allow.

There is, I know, a great fault among all sorts of people of principling their children and scholars, which at last, when looked into, amounts to no more but making them imbibe their teacher's notions and tenets by an implicit faith, and firmly to adhere to them whether true or false. What colours may be given to this, or of what use it may be when practised upon the vulgar, destined to labour, and given up to the service of their bellies, I will not here inquire. But as to the ingenuous part of mankind, whose condition allows them leisure, and letters, and inqu ry after truth, I can see no other right way of princiling them but to take heed, as much as may be, that in their tender years ideas that have

no natural cohesion come not to be united in their heads; and that this rule be often inculcated to them to be their guide in the whole course of their lives and studies, *viz.* that they never suffer any ideas to be joined in their understandings in any other or stronger combination than what their own nature and correspondence give them, and that they often examine those that they find linked together in their minds, whether this association of ideas be from the visible agreement that is in the ideas themselves, or from the habitual and prevailing custom of the mind joining them thus together in thinking.

This is for caution against this evil, before it be thoroughly rivetted by custom in the understanding; but he that would cure it when habit has established it, must nicely observe the very quick and almost imperceptible motions of the mind in its habitual actions. What I have said in another place about the change of the ideas of sense into those of judgment, may be proof of this. Let any one not skilled in painting be told, when he sees bottles, and tobacco-pipes, and other things so painted as they are in some places shown, that he does not see protuberances, and you will not convince him but by the touch: he will not believe that by an instantaneous legerdemain of his own thoughts, one idea is substituted for another. How frequent instances

may one meet with of this in the arguings of the learned, who not seldom, in two ideas that they have been accustomed to join in their minds, substitute one for the other; and, I am apt to think, often without perceiving it themselves? This, whilst they are under the deceit of it, makes them incapable of conviction, and they applaud themselves as zealous champions for truth, when indeed, they are contending for error. And the confusion of two different ideas, which a customary connexion of them in their minds hath made to them almost one, fills their head with false views, and their reasonings with false consequences.

§ 42. *Fallacies.*

Right understanding consists in the discovery and adherence to truth, and that in the perception of the visible or probable agreement or disagreement of ideas, as they are affirmed and denied one of another. From whence it is evident, that the right use and conduct of the understanding, whose business is purely truth and nothing else, is, that the mind should be kept in a perfect indifferency, not inclining to either side, any farther than evidence settles it by knowledge, or the over-balance of probability gives it the turn of assent and belief; but yet it is very hard to meet with any

discourse wherein one may not perceive the author not only maintain (for that is reasonable and fit) but inclined and biassed to one side of the question, with marks of a desire that that should be true. If it be asked me, how authors who have such a bias and lean to it may be discovered? I answer, by observing how in their writings or arguings they are often led by their inclinations to change the ideas of the question, either by changing the terms, or by adding and joining others to them, whereby the ideas under consideration are so varied as to be more serviceable to their purpose, and to be thereby brought to an easier and nearer agreement, or more visible or remoter disagreement one with another. This is plain and direct sophistry; but I am far from thinking that wherever it is found it is made use of with design to deceive and mislead the readers. It is visible that men's prejudices and inclinations by this way impose often upon themselves; and their affection for truth, under their prepossession in favour of one side, is the very thing that leads them from it. Inclination suggests and slides into their discourse favourable terms, which introduce favourable ideas; till at last, by this means, that is concluded clear and evident, thus dressed up, which taken in its native state, by making use of none but the precise determined ideas, would find no admittance at

all. The putting these glosses on what they affirm ; these as they are thought, handsome, easy, and graceful explications of what they are discoursing on, is so much the character of what is called and esteemed writing well, that it is very hard to think that authors will ever be persuaded to leave what serve so well to propagate their opinions, and procure themselves credit in the world, for a more jejune and dry way of writing, by keeping to the same terms precisely annexed to the same ideas ; a sour and blunt stiffness, tolerable in mathematicians only, who force their way, and make truth prevail by irresistible demonstration.

But yet if authors cannot be prevailed with to quit the looser, though more insinuating ways of writing : if they will not think fit to keep close to truth and instruction by unvaried terms, and plain unsophisticated arguments ; yet it concerns readers not to be imposed on by fallacies, and the prevailing ways of insinuation. To do this, the surest and most effectual remedy is to fix in the mind the clear and distinct ideas of the question stripped of words ; and so likewise in the train of argumentation, to take up the author's ideas, neglecting his words, observing how they connect or separate those in the question. He that does this will be able to cast off all that is superfluous ; he will see what is pertinent, what

coherent, what is direct to, what slides by the question. This will readily show him all the foreign ideas in the discourse, and where they were brought in ; and though they perhaps dazzled the writer, yet he will perceive that they give no light nor strength to his reasonings.

This though it be the shortest and easiest way of reading books with profit, and keeping one's self from being misled by great names or plausible discourses ; yet it being hard and tedious to those who have not accustomed themselves to it, it is not to be expected that every one (among those few who really pursue truth) should this way guard his understanding from being imposed on by the wilful, or at least undesigned sophistry, which creeps into most of the books of argument. They, that write against their conviction, or that, next to them, are resolved to maintain the tenets of a party they are engaged in, cannot be supposed to reject any arms that may help to defend their cause, and therefore such should be read with the greatest caution. And they who write for opinions they are sincerely persuaded of, and believe to be true, think they may so far allow themselves to indulge their laudable affection to truth, as to permit their esteem of it to give it the best colours, and set it off with the best expressions and dress they can, thereby to gain it the easi-

est entrance into the minds of their readers, and fix it deepest there.

One of those being the state of mind we may justly suppose most writers to be in, it is fit their readers, who apply to them for instruction, should not lay by that caution which becomes a sincere pursuit of truth, and should make them always watchful against whatever might conceal or misrepresent it. If they have not the skill of representing to themselves the author's sense by pure ideas separated from sounds, and thereby divested of the false lights and deceitful ornaments of speech, this yet they should do. they should keep the precise question steadily in their minds, carry it along with them through the whole discourse, and suffer not the least alteration in the terms, either by addition, subtraction, or substituting any other. This every one can do who has a mind to it; and he that has not a mind to it, it is plain, makes his understanding only the warehouse of other men's lumber ; I mean false and unconcluding reasonings, rather than a repository of truth for his own use ; which will prove substantial, and stand him instead, when he has occassion for it. And whether such an one deals fairly by his own mind, and conducts his own understanding right, I leave to his own understanding to judge.

§ 43. *Fundamental Verities.*

The mind of man being very narrow, and so slow in making acquaintance with things, and taking in new truths, that no one man is capable, in a much longer life than ours, to know all truths; it becomes our prudence, in our search after knowledge, to employ our thoughts about fundamental and material questions, carefully avoiding those that are trifling, and not suffering ourselves to be diverted from our main even purpose, by those that are merely incidental. How much of many young men's time is thrown away in purely logical inquiries, I need not mention. This is no better than if a man, who was to be a painter, should spend all his time in examining the threads of the several cloths he is to paint upon, and counting the hairs of each pencil and brush he intends to use in the laying on of his colours. Nay, it is much worse than for a young painter to spend his apprenticeship in such useless niceties; for he, at the end of all his pains to no purpose, finds that it is not painting, nor any help to it, and so is really to no purpose: whereas men designed for scholars have often their heads so filled and warmed with disputes on logical questions, that they take those airy useless notions for real and substantial knowledge, and think their understandings so well furnished with science, that they need not look

any farther into the nature of things, or descend to the mechanical drudgery of experiment and inquiry. This is so obvious a mismanagement of the understanding, and that in the professed way to knowledge, that it could not be passed by ; to which might be joined abundance of questions, and the way of handling of them in the schools. What faults in particular of this kind every man is, or may be guilty of, would be infinite to enumerate ; it suffices to have shown that superficial and slight discoveries and observations that contain nothing of moment in themselves, nor serve as clues to lead us into farther knowledge, should not be thought worth our searching after.

There are fundamental truths that lie at the bottom, the basis upon which a great many others rest, and in which they have their consistency. These are teeming truths, rich in store, with which they furnish the mind, and, like the lights of heaven, are not only beautiful and entertaining in themselves, but give light and evidence to other things, that without them could not be seen or known. Such is that admirable discovery of Mr. Newton, that all bodies gravitate to one another, which may be counted as the basis of natural philosophy ; which of what use it is to the understanding of the great frame of our solar system, he has to the astonishment of the learned world shown ; and how much farther it would

guide us in other things if rightly pursued, is not yet known. Our Saviour's great rule, that "we should love our neighbour as ourselves," is such a fundamental truth for the regulating human society, that, I think, by that alone, one might without difficulty determine all the cases and doubts in social morality. These and such as these are the truths we should endeavour to find out, and store our minds with. Which leads me to another thing in the conduct of the understanding that is no less necessary, viz.

§ 44. *Bottoming.*

To accustom ourselves, in any question proposed, to examine and find out upon what it bottoms. Most of the difficulties that come in our way, when well considered and traced, lead us to some proposition, which, known to be true, clears the doubt, and gives an easy solution of the question; whilst topical and superficial arguments, of which there is store to be found on both sides, filling the head with variety of thoughts, and the mouth with copious discourse, serve only to amuse the understanding, and entertain company, without coming to the bottom of the question, the only place of rest and stability for an inquisi-

tive mind, whose tendency is only to truth and knowledge.

For example, if it be demanded, whether the Grand Seignor can lawfully take what he will from any of his people ? This question cannot be resolved without coming to a certainty, whether all men are naturally equal ; for upon that it turns ; and that truth well settled in the understanding, and carried in the mind through the various debates concerning the various rights of men in society, will go a great way in putting an end to them, and showing on which side the truth is.

§ 45. *Transfering of thoughts.*

THERE is scarce any thing more for the improvement of knowledge, for the ease of life, and for the dispatch of business, than for a man to be able to dispose of his own thoughts ; and there is scarce any thing harder in the whole conduct of the understanding than to get a full mastery over it. The mind, in a waking man, has always some object that it applies itself to ; which, when we are lazy or unconcerned, we can easily change, and at pleasure transfer our thoughts to another, and from thence to a third, which has no relation to either of the former. Hence men forwardly conclude, and frequently say, nothing is so free as thought, and it were well it were so ; but

the contrary will be found true in several instances; and there are many cases wherein there is nothing more resty and ungovernable than our thoughts: they will not be directed what objects to pursue, nor be taken off from those they have once fixed on; but run away with a man in pursuit of those ideas they have in view, let him do what he can.

I will not here mention again what I have above taken notice of, how hard it is to get the mind, narrowed by a custom of thirty or forty years' standing to a scanty collection of obvious and common ideas, to enlarge itself to a more copious stock, and grow into an acquaintance with those that would afford more abundant matter of useful contemplation; it is not of this I am here speaking. The inconveniency I would here represent, and find a remedy for, is the difficulty there is sometimes to transfer our minds from one subject to another in cases where the ideas are equally familiar to us.

Matters, that are recommended to our thoughts by any of our passions, take possession of our minds with a kind of authority, and will not be kept out or dislodged; but, as if the passion that rules were, for the time, the sheriff of the place, and came with all the posse, the understanding is seized and taken with the object it introduces, as if it had a legal right to be alone considered there. There is scarce any body, I think, of so calm a temper who

hath not some time found this tyranny on his understanding, and suffered under the inconvenience of it. Who is there almost, whose mind, some time or other, love or anger, fear or grief, has not so fastened to some clog, that it could not turn itself to any other object? I call it a clog, for it hangs upon the mind so as to hinder its vigour and activity in the pursuit of other contemplations; and advances itself little or not at all in the knowledge of the thing which it so closely hugs and constantly pores on. Men thus possessed are sometimes as if they were so in the worst sense, and lay under the power of an enchantment. They see not what passes before their eyes; hear not the audible discourse of the company; and when by any strong application to them they are roused a little, they are like men brought to themselves from some remote region; whereas in truth they come no farther than their secret cabinet within, where they have been wholly taken up with the puppet, which is for that time appointed for their entertainment. The shame that such dumps cause to well-bred people, when it carries them away from the company, where they should bear a part in the conversation, is a sufficient argument that it is a fault in the conduct of our understanding, not to have that power over it as to make use of it to those purposes, and on those occasions, wherein we nave need of its assistance.

The mind should be always free and ready to turn itself to the variety of objects that occur, and allow them as much consideration as shall for that time be thought fit. To be engrossed so by one object, as not to be prevailed on to leave it for another that we judge fitter for our contemplation, is to make it of no use to us. Did this state of mind remain always so, every one would, without scruple, give it the name of perfect madness; and whilst it does last, at whatever intervals it returns, such a rotation of thoughts about the same object no more carries us forward towards the attainment of knowledge, than getting upon a mill horse whilst he jogs on in his circular track would carry a man a journey.

I grant something must be allowed to legitimate passions, and to natural inclinations. Every man, besides occasional affections, has beloved studies, and those the mind will more closely stick to; but yet it is best that it should be always at liberty, and under the free disposal of the man, and to act how and upon what he directs. This we should endeavour to obtain, unless we would be content with such a flaw in our understanding, that sometimes we should be as it were without it; for it is very little better than so in cases where we cannot make use of it to those purposes we would, and which stand in present need of it.

But before fit remedies can be thought on

for this disease, we must know the several causes of it, and thereby regulate the cure, if we will hope to labour with success.

One we have already instanced in, whereof all men that reflect have so general a knowledge, and so often an experience in themselves, that nobody doubts of it. A prevailing passion so pins down our thoughts to the object and concern of it, that a man passionately in love cannot bring himself to think of his ordinary affairs, or a kind mother drooping under the loss of a child, is not able to bear a part as she was wont in the discourse of the company, or conversation of her friends.

But though passion be the most obvious and general, yet it is not the only cause that binds up the understanding, and confines it for the time to one object, from which it will not be taken off.

Besides this, we may often find that the understanding, when it has awhile employed itself upon a subject which either chance, or some slight accident, offered to it, without the interest or recommendation of any passion, works itself into a warmth, and by degrees gets into a career, wherein, like a bowl down a hill, it increases its motion by going, and will not be stopped or diverted ; though, when the heat is over, it sees all this earnest application was about a trifle not worth a thought, and all the pains employed about it lost labour.

There is a third sort, if I mistake not, yet lower than this ; it is a sort of childishness, if I may so say, of the understanding, wherein, during the fit, it plays with and dandles some insignificant puppet to no end, nor with any design at all, and yet cannot easily be got off from it. Thus some trivial sentence, or a scrap of poetry, will sometimes get into men's heads, and make such a chiming there, that there is no stilling of it ; no peace to be obtained, nor attention to any thing else, but this impertinent guest will take up the mind and possess the thoughts in spite of all endeavours to get rid of it. Whether every one hath experimented in themselves this troublesome intrusion of some frisking ideas which thus importune the understanding, and hinder it from being better employed, I know not. But persons of very good parts, and those more than one, I have heard speak and complain of it themselves. The reason I have to make this doubt, is from what I have known in a case something of kin to this, though much odder, and that is of a sort of visions that some people have lying quiet, but perfectly awake, in the dark, or with their eyes shut. It is a great variety of faces, most commonly very odd ones, that appear to them in a train one ofter another ; so that having had just the sight of the one, it immediately passes away to give place to another, that the same instant succeeds, and

has as quick an exit as its leader; and so they march on in a constant succession; nor can any one of them by any endeavour be stopped or retained beyond the instant of its appearance, but is thrust out by its follower, which will have its turn. Concerning this fantastical phenomenon I have talked with several people, whereof some have been perfectly acquainted with it, and others have been so wholly strangers to it, that they could hardly be brought to conceive or believe it. I knew a lady of excellent parts, who had got past thirty without having ever had the least notice of any such thing; she was so great a stranger to it, that when she heard me and another talking of it, could scarce forbear thinking we bantered her; but some time after drinking a large dose of dilute tea, (as she was ordered by a physician) going to bed, she told us at next meeting, that she had now experimented what our discourse had much ado to persuade her of. She had seen a great variety of faces in a long train, succeeding one another, as we had described; they were all strangers and intruders, such as she had no acquaintance with before, nor sought after then; and as they came of themselves they went too; none of them stayed a moment, nor could be detained by all the endeavours she could use, but went on in their solemn procession, just appeared and then vanished. This odd phenomenon seems to have

a mechanical cause, and to depend upon the matter and motion of the blood or animal spirits.

When the fancy is bound by passion, I know no way to set the mind free, and at liberty to prosecute what thoughts the man would make choice of, but to allay the present passion, or counterbalance it with another; which is an art to be got by study, and acquaintance with the passions.

Those who find themselves apt to be carried away with the spontaneous current of their own thoughts, not excited by any passion or interest, must be be very wary and careful in all the instances of it to stop it, and never humour their minds in being thus triflingly busy. Men know the value of their coporeal liberty, and therefore suffer not willingly fetters and chains to be put upon them. To have the mind captivated is, for the time, certainly the greater evil of the two, and deserves our utmost care and endeavours to preserve the freedom of our better part. In this case our pains will not be lost; striving and struggling will prevail, if we constantly, on all such occasions, make use of it. We must never indulge these trivial attentions of thought; as soon as we find the mind makes itself a business of nothing, we should immediately disturb and check it, introduce new and more serious considerations, and not leave till we

have beaten it off from the pursuit it was upon. This, at first, if we have let the contrary practice grow to a habit, will perhaps be difficult; but constant endeavours will by degrees prevail, and at last make it easy. And when a man is pretty well advanced, and can command his mind off at pleasure from incidental and undesigned pursuits, it may not be amiss for him to go on farther, and make attempts upon meditations or greater moment, that at the last he may have a full power over his own mind, and be so fully master of his own thoughts, as to be able to transfer them from one subject to another, with the same ease that he can lay by any thing he has in his hand, and take something else that he has a mind to in the room of it. This liberty of mind is of great use both in business and study; and he that has got it will have no small advantage of ease and despatch in all that is the chosen and useful employment of his understanding.

The third and last way which I mentioned the mind to be sometimes taken up with, I mean the chiming of some particular words or sentence in the memory, and, as it were, making a noise in the head, and the like, seldom happens but when the mind is lazy, or very loosely and negligently employed. It were better indeed to be without such impertinent and useless repetitions: any obvious idea, when it

is roving carelessly at a venture, being of more use, and apter to suggest something worth consideration, than the insignificant buzz of purely empty sounds. But since the rousing of the mind, and setting the understanding on work with some degrees of vigour, does for the most part presently set it free from these idle companions; it may not be amiss, whenever we find ourselves troubled with them, to make use of so profitable a remedy that is always at hand.

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